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GRACE MEI-CHUNG LIU

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Studying the Meaning and Roles of Objects from a Design Perspective

Meichun (Grace) Liu



Abstract

This study is a theoretical discussion from a design standpoint focusing on the meaning and roles of objects. Field research serves as an example applying the conceptual model established in the discussion. The conceptual model is composed of two coordinates: meaning and function, and three modes of roles: utility, sign, and subject. The meaning of objects is more than their symbolic meanings. Objects should be recognized as both meaning bearers and meaning contributors. The role of subject is an important, however often neglected characteristic of objects. It includes unintentional functions and meanings, the self-referential role, and the active contributing role. The model is a useful framework for understanding objects, conducting design research, practicing design interventions, evaluating the outcome of design practice, observing the evolution of objects, and carrying out responsible design. This study contributes to the goal of designing a healthy artificial ecosystem.

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Introduction

1.1. Introduction

The purpose of this research project is to propose a conceptual framework for understanding objects as material artifacts. To be specific, it is to use and expand the concepts of *meaning* and *function* to understand the roles of an object from a design perspective in the domain of user-object engagement. Affiliate issues on social and cultural phases will also be discussed. The approach here, using meanings and functions as a key approach to explain the roles of an object in user-object engagement, is carefully selected after reviewing existing conceptual models and approaches. Major considerations are derived from the creative and empirical nature of the design discipline, which possesses the responsibility and ability to intervene in the world of objects. For convenience, the term *design intervention* is used to represent design forces for the following discussion. Here, design forces are considered as the conception and planning of the artificial. The concept of influences from design will be further developed in this thesis.

For readers to easily understand the position taken and essence of this research subject, material culture is introduced here as an example to create a comparison. For cultural materialists, to understand an object is to understand the evidence drawn from outside of it, which reflects both thoughts and behaviour of people living in a certain culture. The definition of material culture is “the study through artifacts of the beliefs - values, ideas, attitudes, and assumptions - of a particular community or society at a given time” (Prown, 1982, 1). This discipline comes from a fundamental belief of determinism that there is a cause for every effect induced by or observable in the object. Therefore, “the way to understand the cause (some aspect of culture) is the careful and imaginative study of the effect (the object)” (Prown, 1982, 6). We can apply this formula to compare the underlying essence of material culture and that of the design discipline:

	Cause	Effect
Material culture	some aspect of culture	the object
Design	design intervention	the roles of the object

Thus the formula of the design discipline can be paraphrased as: the way to understand the cause (design intervention) is the study of the effect (the roles of the object). This comparison centres only on the understanding aspect of design, given the premise that to practice responsible design is to understand the notion of design intervention. Cultural materialists are less concerned with the creative aspect, which is an aspect relatively important to designers.

Therefore, in this research project, studying the meaning and roles of objects can be treated as a prerequisite to understand design interventions. At this prerequisite stage, the suggested model here is composed of meaning and roles for further studies on understanding design interventions and achieving responsible design. This conceptual model particularly emphasizes the subjective role of an object.

1.2. Motivation

There are two major reasons that draw the author's attention to this research project. One is the recognition of understanding the relationship between users and objects as one of the core issues in the design discipline. The other is the intention to contribute to design discourse in the area of user-object engagement.

1.2.1. Understanding the Relationship between Users and Objects is One of the Core Issues in the Design Profession

Design as a form of science embeds understanding, which is a necessity for practising responsible design. Herbert Simon (1981), a theorist who wrote extensively on design and its relationship to nature and science, considered design as the "science of the artificial." He stated: "Design, like science, is a tool for understanding as well as acting" (188). The understanding aspect of design is an important part in what Simon called "design science," which he defined as "a body of intellectually tough, analytic, partly formalizable, partly empirical, teachable doctrine about the design process" (132). Since design is teachable, as Simon indicated, the content of design process should be presented in a way that can be shared within design practitioners, rather than being a pure subjective activity without common rules. In other words, documents of how designers think and understand in the process of design are important. Design itself is a powerful tool that helps understand the issues that concern designers. It contains a body of knowledge, not only for how to practice design, but also for how designers understand their subjects of design.

Furthermore, the concept of understanding includes responsibility. In "On Understanding the Difficulty in Understanding Understanding," Jay Rosenberg (1981, 43) concludes: "the job of 'understanding' is not to describe or to label or to signal an achievement at all. The job of understanding is publicly to certify the having of rights and responsibility." From this point of view, understanding is more than a task in the academic domains but also a necessity of designers practising responsible design interventions. Design, as a socially certified discipline, is issued the rights and responsibility based on a designer's professional knowledge and understanding. The subject areas of understanding vary from the areas of concentrations in the design discipline. In this research, the concentration is on the relationship between users and objects. The concep-

tual model of the meaning and roles of an object is used to understand, to articulate criteria, and to trace the boundary of the user-object relationship.

A seemingly radical opinion related to the above notion is shown in Klaus Krippendorff's axiomatic proposal for design discourse: "Accept as axiomatic that humans act not on the physical qualities of things but on what they come to mean to them" (Krippendorff, 1994, 60). His strong statement by which he defines the boundary of design discourse and the responsibility in the design profession provides a supportive argument for the importance of understanding the meaning generated from the relationship between users and things.

1.2.2. The Discourse on User-object Engagement Needs to be Further Developed in the Design Discipline

Design has been discussed in a variety of ways. I would like to quote the description of industrial design given by Roger Funk, and Pascal Malassigné, IDSA (Industrial Designers Society of America), in 1996 and approved by the IDSA Executive Committee:

Essential competencies

...

The ability to investigate and synthesize the needs of marketing, sales, engineering, manufacturing, servicing, and ecological responsibility and to reconcile these needs with those of the user in terms of satisfaction, value, and safety (Malassigné, 1998, 58).

This is an essential but inadequate description of industrial design, which needs to be broadened and developed with respect to the following two dimensions: the social responsibility and the theoretical basis for understanding user-object relationship.

Social responsibility

So far, many designers have spent a large amount of energy on environmental issues; prevailing terms such as sustainable design and ecological design indicate these trends. However, discourse on social responsibility seems not yet to achieve common awareness in the design community. Social responsibility is more than safety considerations. An artifact can have decisive importance in "defining the functioning and organization of a society, the patterns of behaviour and distribution of roles of its members, and even its problems – in other words, in defining culture" (Riccini, 1998, 51). As with their profound influences on society, artifacts need to be seen as not only material things, whose life cycles and material pollution are generally concerned, but also as influential entities which can produce visual, semantic, and information pollution, and result in social changes.

An example of what Langdon Winner (1995) called “political artifacts” is Walter Dorwin Teague’s designs for Kodak cameras. Teague and Kodak provided affordable private cameras and thus contributed to democracy in some sense (Winner, 1995, 160). Another example of how artifacts change social structure is the invention of the microwave oven. Mark Gottdiener points out that the use of the microwave oven liberates the dependency on food preparing individuals, usually mothers, and provides flexible meal eating time and choices. It makes commuting or shifting work arrangements more possible (Gottdiener, 1995, 50). Television, which is a subject that has been broadly studied in terms of technological impacts on social orders, significantly rearranges many viewers’ daily activities in a modern society. Robert Kubey and Mihaly Csikszentmihalyi comment that television decreases the amount of time viewers spend on other activities, which were centres for the household in the past or are other potential centres. The less productive and less interactive activity of television watching is not adequate to become a centre of people’s life, Kubey and Csikszentmihalyi argue. They worry that “one may well lose opportunities to grow as a human being” if one centres one’s household life on viewing television (Kubey and Csikszentmihalyi, 1990, 207).

The theoretical basis for understanding user-object relationship

Meeting the objective of ecological and social responsibility demands rational tools. A theoretical basis for understanding user-object relationships is a fundamental one. Richard Buchanan, contemporary design educator, writes the concept of “flow”, the psychology of optimal experience described by Csikszentmihalyi, provides a theoretical foundation for understanding the relation between users and products, and sheds light on new design thinking. While the need for the intellectual frameworks that can help guide practising design is still under great demand (Buchanan, 1991, 81), many designers and design educators also point at the lack of theoretical basis of design, and contribute their ideas to building and to reinforcing it. Being aware of such weakness in design, in this study thoughts and theories from various disciplines and perspectives are integrated to suggest a conceptual model.

1.3. Purpose of the Study

The purpose of the study is:

1.3.1. To Establish a Conceptual Framework for Understanding User-Object Engagement from a Design Perspective

The main objective of this study is to provide a conceptual framework to improve the understanding of the user-object relations from a design standpoint. Systems, meanings, models, metaphors, and frameworks are representations useful to clarify ideas, construct realities, and

filter excessive information from a given ideology and perspective in order to fulfil certain purposes. As a result, all models, including this framework, reveal and conceal elements in reality depending on the observer's selected basis. Le Corbusier defines a house as a machine for living in. This metaphor emphasizes the technological and functional aspects of a house but also conceals other aspects of its nature. This example shows that a language model that emphasizes certain features in order to fulfil certain purposes in a particular context has its priority in terms of meanings (Snodgrass and Coyne, 1992, 71-72). Awareness of this inevitably fundamental premise and limitation in using language as a medium for delivering ideas and thoughts is important, because in reality, elements at play usually have no clear-cut relations and definitions.

1.3.2. To Use the Conceptual Framework to Discuss Design Interventions and the Evolution of Objects

The secondary objective of this study is to discuss how the established conceptual framework can be applied to design studies especially about design interventions and the evolution of objects. In Chapter 3, this framework will be discussed briefly and used to build a primary theoretical model of the evolution of objects. The intention here is not to fully develop a conceptual basis for design practice in the area of user engagement with objects as that is beyond anyone's ability. The framework is a guided terrain which needs to be further built and developed by using resources from various disciplines in social and natural sciences.

Field research as an application of the established framework is conducted. The hiking backpack as an example of an object is the subject of the field research project. It is carried out to review the proposed framework and to understand the meaning and roles of the backpacks from the users' and designer's points of view. A written description is presented (Appendix 1), and an edited video of the interviews is produced (Appendix 4). By using a video, a more direct visual stimuli enhances original data that an interpreted and reductive written description cannot properly represent. The nature of the design process actively deals with complex and undefined elements, and relies heavily on visual and linguistic communication. An additional source, the video, is provided to accommodate the visual information.

1.4. Definition

The term *definition*, used to define what a term means, does not escape the sphere of language model discussed previously. This is brought up because two key terms in this thesis, meaning and function, which are widely used in professional discourse and daily conversations, do not possess simple definitions and therefore sometimes create difficulties and misunderstandings in meaning transformations and transmissions. So far, some theorists have suggested to extend the notion of function to the symbolic realm (Findeli, 1994), and to deeper ideologies and social ramifications (Richardson, 1993). The need to broaden the definition of function and to expand it

into the ideological domain is understandable. However, any interpretation of certain terminology has its limits. While a specific term cannot satisfactorily afford assigned meanings in a common sense, we should start to consider introducing a new term to accommodate the new concept. In other words, instead of trying to contain more meanings in a given term, another term might be needed. A call for such a need is not rare, since the meaning of a word constantly changes and evolves according to consensus generated from its users in the professional communities, societies, and histories. In this thesis, the concept of function is separated from that of meaning and thus work with two major dimensions, which are relatively independent, for the rest of the discussion.

Before starting to discuss the meanings of some keywords, here is an example for the idea of uncertainty of meanings existing in any linguistic model. The work of Jean Baudrillard has been criticized for his privileging of the sign and image at the cost of the reality itself. Some critics argue that his approach of symbolic simplification leaves us a sign value without content and reference to the real world (Gottdiener, 1995), and sees material products as signs without any representational quality that can be interpreted (Vihma, 1994). For instance, in Baudrillard's opinion, Disneyland does not represent something of American or with American qualities. Instead, Disneyland is a simulation, a "hyperreality" based on cultural images and signs. Gottdiener comments that this "infinite regress" – every sign signifying another sign – point of view, must eventually face the "absolute object" and regain the reality we experience in our everyday lives (Gottdiener, 1995, 23).

To give the above argument a second look, there is a lack of common understanding and a missing connection between the term *reality* and *sign* among writers and critics. In the article entitled "Mass Media Culture", Baudrillard uses Marshall McLuhan's formula – "the medium is the message" – to support his idea that "for TV and radio, the primary function of each message is to refer to another message" (88). Finally, these self-referential media become each other's reciprocal contents, in which the circulated ideas become a system of signs that dominates a previous system of reading all over the world (Baudrillard, 1990). This argument corresponds to the thoughts that have been criticized. Nevertheless, Baudrillard's concept of "message" actually enters the realm of reality. In the same article, he writes:

[T]he "message" of a railway is not the coal or passengers it transports, but a new vision of the world, a new state of conurbation, etc. The "message" of TV is not the images it transmits, but the new modes of perception and relations imposed by it, the alteration of traditional family or group structures (Baudrillard, 1990, 89).

In his sense, the "message" is the "reality" being transformed by the media.

This example serves as a reminder that the inevitably revealing and concealing characteristics of a language model can both help the communication and understanding, and lead to the uncertainties in meanings and misinterpretations. The concept of media relates to the role of subject in the conceptual model presented in Chapter 3. Objects' role of subject includes the characteristics objects perform beyond their mediating roles. Objects perform as functional tools that mediates users' action and symbolic signs that mediates meaning when they play their mediating roles. In Chapter 2, relationship between the concept of reality and that of signs, representations, messages, and information will be discussed.

1.4.1. Meaning

The concept of meaning adopted here is based on, but not limited to, studies of semiology. At the beginning of this century, Ferdinand de Saussure, linguist, initially developed the concept of semiology in Europe, while Charles Peirce, philosopher, independently developed semiotics in the United States at a slightly later time. Their studies on the systems of signs literally dominate the succeeding literature and rhetoric discourse involving signs and meanings. As a result, discourse on meanings can hardly escape the ideology derived from its linguistic and philosophical backgrounds. Some other important contributors to the study of meaning are psychologists, who are motivated by their belief in the existential need in man: "the need for living in a world which has a semblance of meaning" (Stern, 1971, 3). Additionally, anthropologists, sociologists, theologians, and phenomenologists, to name a few, have also made and continue to make important contributions to the studies of meaning. Scholars of different disciplines have different motivations corresponding to their essential purposes for the search of meaning. For Saussurean semiologists, who follow the linguistic tradition, they are concerned with developing a general theory of natural language in which signs are used for communication – that is, signs are intentional. On the other hand, Peircian semiotists, who follow the philosophic tradition, are mainly concerned with relating language to culture in a global way, and developing a theory of logic - how people think – as an instrument for acquisition and accumulation of knowledge (Gottdiener, 1995). Naturally, following this pattern of purposive inquiries, the question: "What is the purpose of the design discipline?" should be asked in searching for meaning from a design perspective. In [1.2.]: Motivation, a preliminary effort was made concerning this issue; also, more discussions are meant to answer this question in [1.4.5.]: Definition of Design Perspective, in this chapter. Concerns about meanings here are both about objects as barriers of meanings and objects as contributors to meanings. This simple remark actually draws a distinction between language- and design-oriented studies because words or texts do not create meanings in a linguistic sense, instead, they *carry* them. In the endeavour to focus on the design standpoint, definitions of some select key terms are provided to take into account meanings that are related to the thesis.

Meanings are derived from processes and refer to not only signs or symbols, but all phases of the sign-creating processes

An object, a sentence, or an action itself does not produce meaning alone. Instead, meanings are derived from processes. The processes include sign-creating process, engagement, and social interaction. Meaning-creating process constitutes the observer, participant, and interpreter.

Meaning derived from sign-creating processes

Responses are thought to be an important factor in meaning situations. To formulate a link between behavioural responses and meanings, John B. Watson (1919, 110) states in his *Psychology from the Standpoint of a Behaviorist*:

Exhaust the conception of action – i.e., experimentally determine all of the organized responses a given object can call forth in a given individual, and you have exhausted all possible “meanings” of that object for that individual.

In other words, meanings are not meant to be an appended characteristic of an object nor a message through which is delivered, but something conceived, interpreted, and determined by the responding individual in this response-determined point of view. Charles Morris proposed a strong argument regarding the diverse usage of the term meaning. To take into account both direct responses and dispositions to respond in a meaning situation, he developed a general “semiotic” by which he claims that the term meaning might well be abandoned because of the confusion it caused. He points out that the word meaning can be used to refer to all phases of the sign-creating processes including designata, denotata, interpretants, sign implicates, and the processes of semiosis. He also considers the term meaning as a semiotical term and not as a term in the “thing language” or a “Platonic idea.” According to him, meanings in a semiotic system are equated with both signification and interpretant and are accessible to scientific inquiry (Morris, 1938). For another behaviourist Charles E. Osgood (1953), meaning can be measured from responses and has various dimensions including not only representational ones but also volitional and emotional ones. Wolfgang Iser (1978), a scholar of English literature, considers that meaning is the result of the process of interaction between text and reader. The response of the reader becomes a creative part of the production of meaning, in which Iser maps three major areas of research. The first involves the potential of text that constitutes allowance for reader’s interpretation. The second relates to the processing of text while the reader forms a mental image through the act of reading. And the third regards the structure of the literature, which governs the way readers interact and give rise to the text. Iser is concerned with both the process of meaning production and the influence of literature on the reader (Iser, 1978, 158). This concept of meaning is constructed on reception theory, which will be discussed in the next chapter.

Meaning derived from engagement

Roles are types of actions in certain context wherever engagement, relationship, involvement, or interaction takes place. In a sign system, the bearer of meaning, representatum, signifier, interpretant, or signified plays a role of typified forms in different contexts of meaning situations. In the situation of user-object engagement, meaning is one of the coordinates (the other is function) that the meaning interpreter uses to define roles according to an object's performance in a system of signification. In other words, the meaning interpreter, or observer, in reference to their meaning system realizes these roles. To depict the process-driven essence of meaning, Krippendorff (1994, 153) states:

Sense is always made by people and meanings become accessible to us in how the stories of our involvement in everyday things are enacted and how Others, spectators, experts or friends are woven into particular interface practices. Artifacts by themselves, much like figures without a ground or words without a context have no stable meanings. The meanings we are concerned with here arise in and direct user interfaces with artifacts.

It is noticeable in this statement that the designer is concerned with both the meanings' originality – implied by the term "arise in," and functions – "direct user interfaces with artifacts". According to Krippendorff (1994, 153): "Knowledge of how artifacts afford the meanings users hold or can construct defines [designers'] empirical domain quite differently from that of other professions." He states clearly that there is a need for such knowledge and theoretical base in order to understand the origins and processes of meaning in user engagement from a design standpoint, and for the empirical applications of such meanings for design practice.

Meaning derived from social interaction

Symbolic interaction, a discipline that stems from sociology, has its three basic premises articulated by Herbert Blumer, as paraphrased by Norman Denzin (1992, 57):

first, human beings act toward things on the basis of the meanings that things have for them; second, that the meanings of things arise out of the process of social interaction; and third, that meanings are modified through an interpretive process which involves self-reflective individuals symbolically interacting with one another.

This formulation is a behaviorist approach to the sign, as Denzin points out. The focus of symbolic interactionists has been privileging interaction and communication of people. In other words, it has largely been concerned with social interaction and speech among socialized individuals (Gottdiener, 1995). Gottdiener (1995, 57) states that the study of semiotics is meant to embrace the "more global phenomenon of culture and does not restrict itself either to language alone or to the process of communication." As a result, all forms of culture, including material

culture, are subject to semiotic analysis. Objects are not only expressive symbols that limit themselves to the social world of communication within a speech community, but also subjects within a cultural system containing both a “syntagmatic (or syntactical) order” and a “paradigmatic (or semantic) order” that create meaning, according to Gottdiener (1995, 59). This privileging of the communicative quality of objects is derived from a linguistic background. The next chapter discusses the issue of some misleading concepts of using linguistics for understanding the meaning of objects. However, it will also be pointed out that some observations from symbolic interactionists are still useful for design discourse. The symbolic aspect of objects is integrated into the role of sign in the conceptual framework proposed here.

Both the contributing and conveying quality of an object are important to the meaning process

A simple rule to distinguish an object’s conveying, or objective quality from that of the contributing, or subjective quality is to recognize the operating term attached to an object, that is: agent, carrier, vehicle, messenger, conveyer, or bearer. Indeed, throughout literature, many discussions on the meaning of objects are discussions on the objects as bearers of meaning. To consider this concept in more detail, we have to recall the concept described previously that the meaning of an object is not derived from the object alone, but from processes of interaction. Thus, to study the meaning of an object is actually to study objects in various meaning-creating processes in a dynamic sense. The meanings of an object are observable from activities, conversations, contexts, scripts, changes of ideas, interactions, relationships, responses, emotions, socialization and so on. For instance, a user says: “To hike with my backpack is like ... happy.” In this sentence, a meaning situation is formed from the user’s perspective and on its base we can study the hiking backpack’s meaning. We can also study the meanings of a given sentence, say, “the officer signed the document.” In this meaning situation, the sentence is the bearer of meaning but it is the act of “signing the document” that really makes sense. In other words, the act is the contributor of meaning and the sentence is the bearer of meaning. In this case, what one really should be concerned with in a real-world situation is the consequence of the act, not the meaning of the sentence in the world of linguistics. Readers can easily observe the asymmetrical comparison between these two sentences in terms of the bearer of meaning (the sentence), and the contributor of meaning (the act). Nevertheless, discourse often fails to recognize this difference especially when meanings enter a multi-layered signification system such as in a fashion system. In the book, *The Meaning of Things*, Mihalyi Csikszentmihalyi and Eugene Rochberg-Halton (1981, 43) comment that “most accounts of how things signify tend to ignore the active contribution of the thing itself to the meaning process.” To accommodate the contributing quality of an object, a proposed dimension for the subjective roles of an object in the conceptual framework is discussed in Chapter 3.

1.4.2. Roles

Although it is not always appropriate to compare a lifeless object to a living creature, used here is a model of roles of people in society to explain the roles of objects. This is not a rare approach. For instance, McLuhan once called a car the “mechanical bride” of a man, and Ezio Manzini (1995, 239) proposed a concept of “a garden of objects”, in which objects are beautiful and useful as trees which demand care, love, and deep engagement from people. The model used here is adopted from Peter Berger’s conception of roles in his book, *The Social Construction of Reality*. He describes that roles are typifications of forms of actions and performances with objective identifications and shared recognition in a society. Actors who play the roles have typified actions and expectations to perform; thus different individuals can repeat and recur any actions of the appropriate role. The “social self”, which is a segment of the self-consciousness based on social objectifications, is subjectively experienced by the individual and becomes a part of the self in its totality. These roles of the self-apprehended actors relate to knowledge from two perspectives. From the perspective of the institutional order, roles are institutional representations and mediations of aggregate knowledge. And from the perspective of several roles, each role appears as a socially defined carrier of a portion of knowledge (Berger, 1967). How does this conception of roles in society relate to the roles of objects? And by what means can the characteristic of roles of an object be defined? The roles of an object can be conceptualized from the following arguments:

The roles of an object are defined by its intended and unintended performance

As already noted, the roles of an object can be interpreted and analysed from its meanings and functions, an object’s performance can also be depicted from these two aspects. From the functional aspect, applied here is the idea borrowing from material culture. McClung Fleming (1974, 156), a cultural materialist, expresses: “Function embraces both the uses (intended) functions and the roles (unintended functions) of the object in its culture, including utility, delight, and communication.” To project this idea onto an object’s performance, both intended and unintended functions of an object are embedded in its functional performance. An object becomes an actor with a typified role when it performs its intended function. To return to Berger’s model of roles, the actor, Berger expresses, for the moment of playing a certain role, apprehends themselves in identification with objectivated typifications of performance. Nevertheless, there are also other aspects of the self and marginal awareness of the individual that do not relate to this socially objectivated action directly. We can relate the first part of this idea to an object’s intended function and the second part to its unintended function.

We can also observe an object’s intended and unintended performance from its meanings. It has become a consensus that the meaning of an object is not determined by its creator (designer), but realized, interpreted, and also created by its user (Barthes, Burnette). Furthermore, the meaning of an object for a user fluctuates from the user’s immediate context. The “text” of an

object is able to “decontextualize” itself and, by the act of “reading” of the user, to “re-contextualize” in every new situation (Richardson, 1994, 114). Therefore, roles are not an object’s “affordance”, a term coined by James Gibson as the ecological equivalent of meaning, that attaches to an object, which “offers what it does because it is what it is” (Gibson, 1979, 139). Instead, the demand character of objects belongs to the phenomenal and behavioural, instead of physical and geographical, in the Gestaltist’s conception (Krampen, 1989). As a result, there exists not only fixed (socially-objectivated) meanings but also fluctuating (context-based) meanings based on an object’s performance.

The Roles of an object are cultural representations and mediations for cultural changes

Artifacts co-shape the culture and contribute to cultural changes with people in society to achieve the embodiment of goals in concrete patterns of thoughts and emotions that articulate a progressive culture. A system of symbols or meanings or “genetic blueprint” of human beings does not infuse the human evolutionary process. Instead, the cultivation between the two achieves the evolution (Csikszentmihalyi, et al., 1981, 173, 232). From this perspective, we can see objects as roles, which constitute functions and meanings, that mediate between the self and the artificial society, and represent the cultural order. This is somewhat similar to Berger’s conception that roles function as mediators of a specific section of the common stock of knowledge and as symbolic representations of the institutional order. For instance, the role of the monarch may have no other function than as a “living symbol” of the institutional order for every level of people in society (Berger, 1967, 76). In a similar sense, the role of the clothes given by the monarch as an award in ancient China might have no other function than as a symbol of the cultural and social order that classified levels of social status. However, one has to be reminded that it is not a system of symbols or meanings of artifacts that brings evolution in civilization, but the cultivation, transaction and relationship between the person and the thing, that bring the cultural changes (Csikszentmihalyi, et al., 1981). Objects contribute to cultural and social changes through interactions with members in society, not by themselves alone.

The roles of an object in user engagement refer to the object’s position realized by a user in the phases of meaning and function

In the meaning phase, the roles of an object are realized by a user through conceptual engagement. In the function phase, the roles of an object are realized through empirical uses. Proposed here a model with two coordinates, which are two phases for reading the roles of an object. Instead of understanding an object from its implemented characteristic and inclinations, such as a piece of furniture designed by Memphis of Milan labelled to be more symbolic than functional, the roles of an object can be read by its status in a platform made up with two coordinates: meaning and function. As a user constructs their model of realization for an object, they define and locate its status at the meaning coordinate according to their conceptual understanding in relation to what the object makes sense to them, and at the functional coordinate according to

their pragmatic understanding in relation to its use. This user-centred model for studying roles shifts concentrations from the object to the user, and makes meaning and function no longer elements in opposite positions, which is a diagram adopted by some scholars. To some extent, meaning and function become parallel elements that are independent to each other.

To apply the above conception of the roles of objects, for instance, an observer may understand the role of a monument in a way that it is an important symbol that makes sense to them. The monument as a symbol reveals its meaning aspect by connecting with their previous experience and knowledge, and thus occupies a position in the meaning coordinate in their mind. At the same time, they also realize that the symbolic role of the monument also becomes its only function in the society. In this case, the monument reveals its functional aspect and obtains a position in the function coordinate in their mental model.

The subjectivity of roles is an important motivation for social improvement

As previously mentioned, roles in a society constitute both objectivated performances and marginal awareness, and the latter of which does not directly relate to the objectivated actions of a society. Both aspects of roles are equally essential to individuals' (actors') self-apprehension and self-experience. In the following discussion, Gregory Bateson's opinion in respect of people in a society of division of labour is considered. In a situation which Ursula Franklin (1990) calls the "prescriptive technology", members in a social machine of technology act as prescript parts for achieving a set of purposes and accomplishments. Individuals who play assigned roles and with only pure consciousness on the roles are actually "dehumanized creatures", according to Bateson. He writes:

In biological fact, these entities are precisely not persons and are not even aggregates of whole persons. They are aggregates of parts of persons. When Mr. Smith enters the board room of his company, he is expected to limit his thinking narrowly to the specific purposes of the company or to those of that part of the company which he represents (446).

In other words, these entities are the aggregates of a part of the selves who perform only objectivated and expected characteristic of their roles. But what is more important here is the possibility of subjectivity, as Bateson (1972, 446) also writes: "Mercifully [this pure, uncorrected consciousness] is not entirely possible, and some company decisions are influenced by considerations which spring from wider and wiser parts of the mind." The role which springs from "wider and wiser parts of the mind" sheds light on the routes for escaping the circle of prescriptive technology and for social improvement. Bringing this concept of subjectivity of roles to objects, we can also find hope for a more engaging relationship between users and objects.

1.4.3. Objects

Objects are a subject matter for many studies, such as *The System of Objects* written by Baudrillard and *Objects of Desire* written by Adrian Forty. The term *objects* used here refers to physical things constituting mass, surface, shape, and material that are created and produced by human beings with certain intentionality and purpose. In *The Oxford English Dictionary*, the definition of the term object in the sense relevant to this study is: "Something placed before eyes, ... an individual thing seen or perceived, or that may be seen or perceived; a material thing" (Simpson, 1989, Vol. X 640). Of course, a natural stone lying on the beach is considered an object. However, in order to narrow down the subject of discourse, the focus here is on the material objects as a category of artifacts. The term objects will be distinguished here from some related terms: things, artifacts, products, works, and "pro/jects" that appear in design or design related discourses.

In *The Meaning of Things*, Csikszentmihalyi, et al. uses the term "things" to indicate almost anything that possesses physical property. A book, a piece of furniture, a photo, and a car are all considered as things in the book; indeed, the word "things" and "objects" have been used interchangeably at times. As the term "thing" also denotes immaterial subject such as "an event, occurrence, incident; a fact, circumstance, experience" (Simpson, 1989, Vol. XVII 942).

To understand the concept of artifacts we can conveniently borrow the developed concept from material culture. Jules Prown (1982, 3) classifies artifacts by their functions into the following categories: 1. art (paintings, prints, sculpture, etc.); 2. diversions (books, games, meals, performances, etc.); 3. adornment (jewelry, clothing, cosmetics, etc.); 4. modifications of the landscape (architecture, agriculture, town planning, etc.); 5. applied arts (furniture, receptacles, etc.); and 6. devices (machines, vehicles, musical instruments, etc.). The concept of artifacts includes both material objects and modifications, such as hairstyles, tattooing, town planning, and interior arrangement. We can see man-made objects as members in the lists of the artifact family.

Product is a term used extensively in design discourse; as a result, it tends to embody more extended meanings in the design community than in common use. In fact, it has been referred to as almost all the outcomes of design practice, namely: "communicative symbols and images", "physical objects", "action – in the form of specific services, processes and activities", and is entering the realm of complex systems and environments according to Buchanan (1998, 13). The concept of objects here is in accordance with the "physical objects" in the domain of products in design. "Design(ed) products" and "product milieu" are also relevant phrases to products. Susann Vihma (1994, 13) defines a "design product" as the outcome of the design process, especially refers to an industrially manufactured artifact. Victor Margolin uses the word "product milieu" to "characterize the aggregate of material and immaterial products, including objects, systems, and services, that fill the world. This milieu is vast and diffuse, fluid rather than fixed"

(59). For Margolin, this is the environment where the products live in and finish their life cycles, and also where individuals make use of them (Margolin, 1994).

It is relatively rare to see the term *works* in design literature compared to above options. Langdon Winner regards works as things shaped, built, and put to use. From his point of view, works are categorized by “the making of things that will endure – works of art, poetry, architecture, monuments, industrial machinery, among others” (150). Winner uses this concept to discuss design in relation to works and politics. He states that the artificial framework in which we live, work, execute political action, and produce and reproduce in biological sense is cast by the works that last, such as works of technology and works of design projects (Winner, 1995). The concept of works embodies a broader and more dynamic meaning than that of objects.

The term *project* is coined by Adam Richardson from the terms *product* and *object*. He proposes the term because the word “object” is flexible however too general in meaning and does not imply any relations with manufacture as the word “product” does. Also, by crossing the word product, an experiment and work-in-progress, with object, the term *project* denotes “a continuing process of interpretation on the user’s part” and “an investment of time and effort on the maker’s part” (112). The term can also be seen as a verb, which implies that the product carries and projects cultural messages. By using the term *project*, Richardson emphasizes the ideological and conceptual impositions perceived and interpreted by users in a meaning system (Richardson, 1994).

To conclude, an object is a material thing and a category of product. In this study, the term object is used particularly to refer to an artifact created purposely. Object denotes a more static state than what work and *project* signify.

1.4.4. User Engagement

The word *engagement* is used here to represent a deeper level of relationship developed between users and objects than ordinary contacts and recognition. It is an interactive and reciprocal relationship requiring feedback and changes of psychic energies, such as care, concentrations, devotion, perception and attention. To focus on the engagement between human beings and things, Albert Borgmann (1995, 15) defines:

“Engagement” is a term to specify the symmetry that links humanity and reality. Human beings have certain capacities that prefigure the things of the world; and conversely what is out there in the world has called forth human sense and sensibility. More specifically the most commanding and subtle things engage our talents most fully; and conversely again, to employ our capacities most deeply we turn to the most powerful and intricate things. Engagement is to designate the profound realization of

the humanity-reality commensuration. For example, a musical instrument normally engages a person deeply; a television program typically fails to do so.

For Borgmann, to rediscover both the festive and daily side of engagement with things in settings of city and home calls for depth in design. The design that constitutes depth of penetration is publicly certified rights and responsibility to change things thoroughly (Borgmann, 1995, 14).

Engagement between users and objects has three major modes: sensory engagement, intellectual engagement, and emotional engagement. The perception and sensory memories are primary references for us to bridge our inner-world and the material environment. Sensory engagement helps formulate our own constructs to understand and approach the reality world. Daily activities such as reading a book, driving a car, or buying a gift are intellectual engagements with artifacts articulating from a series of complex sensory engagements. As for the emotional engagement, an artifact may trigger fright, pleasure, passion, awe, curiosity, or a combination of multiple emotional responses (Prown, 1982). These three modes of engagement act as an inseparable whole. An observer's background knowledge and perceptions of an artifact link closely together in the engagement process.

To view these different modes of engagement from a psychological perspective, Csikszentmihalyi, et al. use the word "cultivation" to describe the modes of meaning that mediate people with things. In the context of motivation, the self is motivated by goals rather than by origins, and that's where we find the meaning of psychic activity in the intentions. The process of cultivation between objects and users is the major psychic activity in user engagement, for cultivation embodies a goal-driven essence and engagement provides the context for the activity of cultivation (Csikszentmihalyi, et al., 1981). Engagement is the way that links ourselves to the material world.

1.4.5. Design Perspective

To search for an appropriate perspective for designers to study the relationship between objects and people is to propose an inquiry into the purpose, goals and values of design, including design studies and design practice. Obviously, no simple answer is able to respond to this inquiry. Following is a discussion about a conceptual outline with two major themes: the subject matter of design and the responsibility of design practice.

Studies in the design discipline have been reflected on the central theme of design: conception and planning of the artificial. The subject matter of design, the artificial, can be classified into four categories: 1. material objects, 2. verbal and visual communication, 3. organized activities and services, and 4. complex systems or environments (Buchanan, 1996, 82). As the terms conception and planning imply, the designer's work has always been a creative one carried out in the above areas with diverse forms. The essence of design can be traced back to the Latin

designare, which means to mark or point out, to indicate, to give something significance, to designate its relation to others, and to plan for action, that denotes the spirit of creating and signifying (Krippendorff, 1996; Micham, 1995). Krippendorff applies the sentence “design is making sense of things” for constructing his theoretical platform for the design discipline. He states:

[The sentence] could be read as “design is a sense creating activity” that can claim perception, experience, and, perhaps, esthetics as its fundamental concern and this idea is quite intentional. Or it can be regarded as meaning that “the products of design are to be understandable or meaningful to someone”... [And a third interpretation] is “design is concerned with the subjective meanings of ‘objectively existing’ objects” (156).

In this statement, he emphasizes the sense-making role of design which he believes has been far behind the making and technology-applying aspect of design in modern industrial products (Krippendorff, 1996).

Some other scholars have also given their definitions of the nature of design with emphases on various respects. As examples given by Buchanan (1996), there are emphases on action by Herbert Simon, visual appearance of product as things by John Heskett, thought by Emilio Ambasz, and communication by George Nelson in their theoretical or philosophical assumptions about design. The theme of this study echoes to Krippendorff’s proposition that “design is making sense of things”, for meaning is the particularly interesting domain for exploration in design.

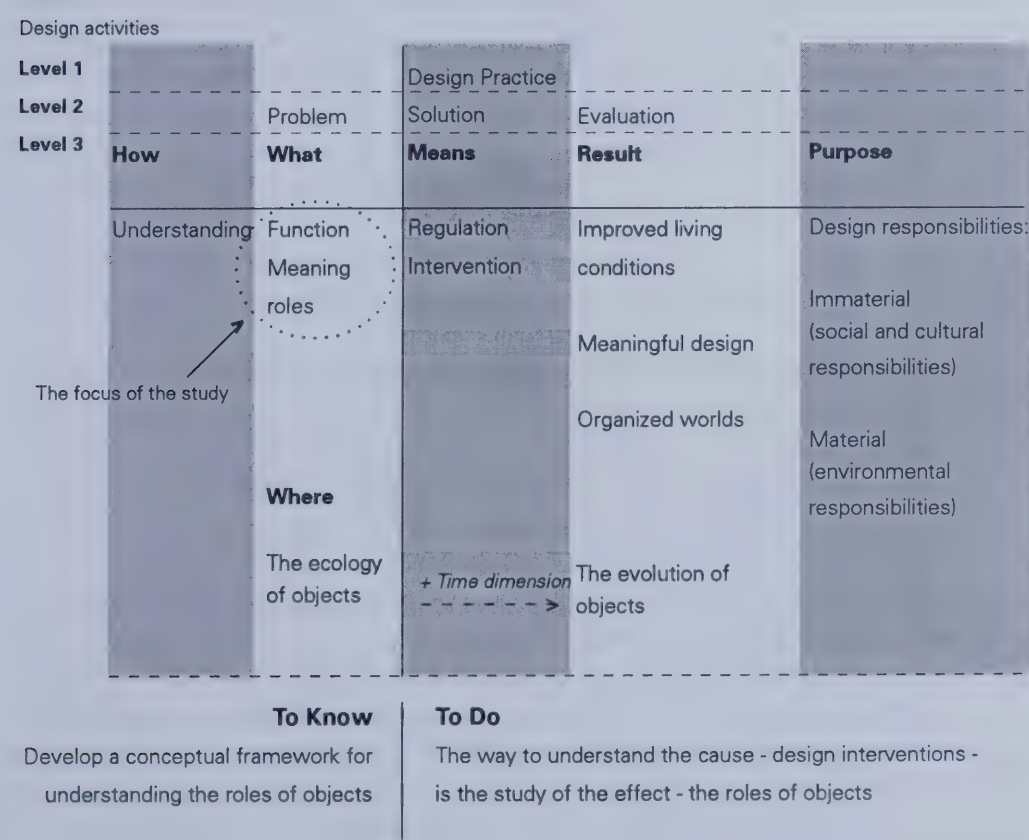
We will come back to the notion of design responsibility to unravel some important aspects of design. Unlike some social sciences, which put more efforts on studying the past and present than on hands-on participation on shaping the future, design is a discipline embedding making, creating, and doing. Designers hold the socially certified license to create, change, and intervene in whatever the subject matters are, and therefore share the responsibility for the outcome of design activities. Taking responsibility as a starting point, design activities are conceived as a series of endless contemplation, judgements, decision-making, predictions, juggling, trading-off, searching for solutions, and so on. To use Richardson’s words, “a designer’s work is never done; or, there is nothing outside the context” (Richardson, 1994, 112). We often ask the question “What/how can/should we do?” instead of “What/how can/should we understand?” during design practice, attitude that inevitably influences design studies. This attitude of concerning what and how can something be improved or regulated becomes a subtle theme underlying this study. For instance, in the field research, it is interesting knowing what is different after the user newly obtained a backpack and why that change happens. Also proposed are “what if” questions by asking participants to imagine some circumstances, such as what if they have or do not

have certain knowledge or equipment in given situations. And in the conceptual framework, the concept *roles* is selected to describe an object’s characteristics because they are more appropriate as the units for designers to observe, regulate, modify, and study in design activities than individual objects. The creative essence of the design activity and the corresponding responsibilities underlie the perspective and approach a designer chooses. Following is an intellectual framework that helps the reader orient themselves to the position taken in this study. This framework also suggests the potential territory beyond the highlighted area of exploration in this study which are the roles and meaning of an object.

1.5. The Intellectual Framework and Focus of the Study

1.5.1. Three Levels of Design Activities

In Figure 1-1, the first level of design activities, design practice, refers to the major or the narrowest concept of design activity. The second level is the traditional design activity emphasizing



[Figure 1-1] The intellectual framework and focus of the study

practice, which includes three major stages in design processes: problem, solution, and evaluation. The third level has entered the realm of design studies including stages of understanding, subjects of design interventions, means for achieving design purpose, evaluations of the result of design interventions, and design responsibilities. Each of these three levels constitutes a broader scope of design activities than the previous level. The second level may be called the “problem-solution” approach and the third level “understanding-responsibility” approach. Comparing these two levels, we can see that the stage of “problem” at the second level is altered to the stage of “what,” which represents what to understand and where to intervene, at the third level. The stage of “solution” is replaced by the stage of “means,” which refers to the means used to improve the subjects identified in the stage of “what.” And the stage of “evaluation” corresponds to the stage of “result,” to trace and evaluate the results from the stage of “means.”

The major difference between the two approaches, problem-solution and understanding-responsibility, is that one is a closed system, begins from problem identification and ends with evaluation, and another is an open system, understanding and responsibility appear at every stage in design activity and there is no starting or ending point. The third level of design activity, the understanding-responsibility approach, is more suitable and favourable than the design activity described at the second level, in terms of depicting the real-world situation. The consensus of “design being not merely an activity of problem solving” has been broadly accepted in the design community (Buchanan, 1990). Alain Findeli (1994, 60) provides two diagrams to explain different ideological and methodological consequences, each in accordance with the design approach at Level 2 and Level 3 in the above scheme:

Diagram 1: Problem > intervention > end of problem (solution)

Diagram 2: State 1 of the system > intervention > state 2 of the system

The role of a designer in the first diagram is “interventionist.” When a system is disturbed, usually by the thing called “need,” a potential problem arises and becomes an identified subject for designers to solve. After design intervention, which is usually called problem solving, the system returns to equilibrium and the task of the designers is finished. Even in the most complex cases, Findeli points out, most of them still follow this cycle of standard design process: setting the problem > analysis > proposed solution > evaluation; only the reiterated and resumed times before coming to a final decision are increased. However, the second approach illustrates a different scenario. The role of a designer becomes a regulator, whose goal is not to return the system to the equilibrium situation before it was disturbed, instead, a designer regulates the dynamic system in reference to new notions of needs. This scenario invites a rethinking of human value systems, including ethical thinking in design that Findeli emphasizes, rather than focusing the simplified “problem-solution” approach in the first diagram (Findeli, 1994). The human value system, which embodies needs, meanings, and beliefs, to name a few, is a huge subject especially of interest to social scientists. In this framework, Findeli’s paradigm is modified

to accommodate the understanding and teleological aspects of the design discipline wanted emphasized.

1.5.2. To Know and to Do

In this framework, a vertical axis separates different stages of design activities into two phases, one is the preparatory phase dominated by the activity of “to know,” and the other is the executive phase dominated by the activity of “to do”. Although elements in these phases are presented in a linear fashion to imply the causal relations among some to them, design activities corresponding to the elements are not necessarily linear. This study focuses on developing a conceptual framework to understand the user-object relationship that serves as a prerequisite for studying design interventions. This is based on the rationale that the way to understand the cause (design intervention) is the study of the effect (the roles of objects). In order to know how “to do” (executive phase), the subjects of “what” to do and “what” to know (preparatory phase) must be identified. The theme of the study, which is the element to fill in the “what” proposition, proposed here is the roles, meaning, and function of objects. Comparing the models at Level 2 and Level 3, we notice the difference in subjects that are prompted by different keywords. Instead of asking the question “What is the design problem that needs to be solved?” at Level 2, the reader is prompted to ask the question, “What is the subject for design interventions and understanding?” at Level 3. The subject and approach are then selected to participate in the process of design interventions.

To study roles, meaning and function were selected as two coordinates to outline a reference to provide grounding and context to a value system. Meaning itself has a close relationship to other components in a value system. It is not possible to attempt to answer a question of need in depth without a reference of meanings, and vice versa. Also, function may be regarded as the finality of use derived from needs. Both coordinates have strong connections with human values, and the belief here is they are part of the ultimate issues designers confront.

Chapter 2

The Meaning of Objects

2.1. Introduction: Function and Its Relations to Meaning

In this chapter, readers will find that the focus is on the concept of meaning rather than on function. However, function and meaning are two essential coordinates of equal importance in a user's mental model. Included an introduction to function and its relations to meaning from the perspective of two critics' conceptions prior to the main discussion on meaning.

Function, according to Roland Barthes (1988, 181), refers to "finality of use." He describes objects as serving human beings to modify the world, act upon the world, and mediate human beings to action. An object can also serve as a vehicle of meaning, which then also becomes its function. In other words, function can be derived from the meaning carried by an object. The function of an object can also contribute to a meaning situation (Barthes, 1988). However, the meaning of an object with its function or the meaning carried by it should not be confused. Meaning derives from the process of meaning; the function of and the meaning carried by an object are only two contributors to the process.

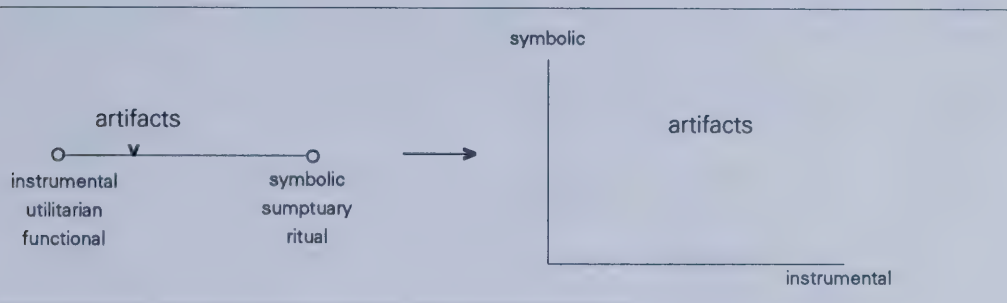
For Barthes (1988), the function of and the meaning carried by an object are two elements in conflict. Function is a use or mediator that is active; however, meaning is a process that is inert and motionless in some sense. Meaning is sustained by function, but meaning is not an action and thus "deactivates the object" that carries the meaning (189). An object struggles between these two opposite ends, sometimes from function to sign, and sometimes returns from sign to function. Barthes illustrates three phases in which an object shifts between these two ends. In the first phase, an object is presented as a useful and functional entity. In the second phase, the function of an object starts to sustain meaning. And in the third phase, an object seems functional at the moment we see it as a sign. This "unreal function" manifesting in the third phase is derived from sign such as a raincoat designed for fashion that is not waterproof (189). He believes that we are living in a society consuming the "unreal function" of objects that is dominated by the ideology of the sign. He describes the relations between an object's function and sign:

We believe we are in a practical world of uses, of functions, of total domestication of the object, and in reality we are also, by objects, in a world of meanings, of reasons, of alibis: function gives birth to the sign, but the sign is reconverted into the spectacle of a function (Barthes, 1988, 190).

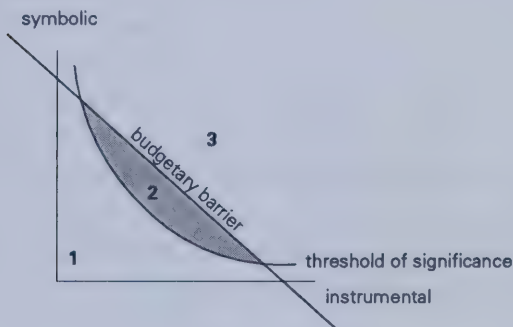
Similarly, Baudrillard (1996) considers that meaning can be derived from the function of an object, and its meaning can serve as its function. He separates two planes in the system of objects: one is the technological plane and the other is the psychological or sociological plane. The technological plane is a structural plane; the sphere it belongs to is "essential", such as the engine of a car that is never directly experienced or apprehended at the practical level in the users' daily experience. On the other hand, the psychological or sociological sphere is inessential from Baudrillard's perspective. In this sphere, objects enter the cultural or practical system of needs and experience; through their connotations, objects are commercialized and personalized. In the essential sphere, functional synthesis can precipitate the emergence of a meaning, which is an object's denotation. However, an object's denotation is inevitably transformed or even threatened by its connotation created from the inessential sphere, according to Baudrillard. In this sense, an object's denotation derived from the technological or essential sphere becomes contradictory to its connotation, which is created from the psychological or inessential sphere. Nevertheless, we have to take into account meanings that are derived from both spheres. As Baudrillard (1996, 10) expresses, there is no contradiction but only intention at the technological sphere, however, "a human science must be a science both of intention and of whatever counters that intention."

In the above discussion, both thinkers consider function as the use of something embedding intentionality and finality. Meaning can be produced from function, and the function of an object can be a sign. Nonetheless, function and meaning remain different qualities one applies to understand and describe an object, even though sometimes function and meaning refer to the same characteristic of an object. Meanwhile, these two elements can also be contradictory qualities that an object perpetually oscillates between, as Barthes and Baudrillard state. In considering the nature of the complex relationship between meaning and function, they are presented here as independent references in a model of understanding objects and therefore they are qualities no longer in an opposite position but in a parallel one. An example of similar arrangement is the model proposed by Findeli (1994). It is a two-dimensional model, one pole refers to an object's symbolic, ritual, or sumptuary features, and the other pole represents its instrumental, utilitarian or functional qualities (Figure 2-1). The transformation from a one-dimensional model, with instrumental and symbolic qualities at two ends, to a two-dimensional model moves "from a polarity of an exclusive type to a possible complementarity" (52), he proposes. Function and symbol are thus no longer in contradictory positions where an object shifts between. Instead, they become complementary qualities possessed by the same object. The advantage of this transformation is that it allows us to interpret and describe an object in a space defined by these poles, such as to present the concept of "threshold of significance" illustrated by Findeli (Figure 2-2). The symbolic and instrumental values of a designed object can have certain meanings for its users if they are greater than the threshold of significance. The object's level of significance is also constrained by the budgetary and technological barrier of the project. Beyond the barrier, the designed object is not viable (Findeli, 1994, 53). In the conceptual frame-

work proposed here, the axis of symbolic quality is replaced by the axis of meaning, for meaning embraces a broader notion than symbols; the axis of utilitarian qualities is replaced by the axis of function. The space defined by the axes of meaning and function allows us to study and interpret “roles” more accurately than a one-dimensional model.



[Figure 2-1] The instrumental/symbolic polarity: from an excluding opposition (left) toward the space of artifacts (right) (Findeli, 1994, 53).



[Figure 2-2] The space of artifacts:
1. meaningless, banal, or inefficient objects;
2. existing artifacts
3. Utopian artifacts or projects ‘on paper’
(Findeli, 1994, 54).

2.2. Fundamental Concepts of Meaning

To begin, here is a statement from Forty’s book, *Objects of Desire*, which is used as an example of some existing notions that are popular, albeit requiring further scrutiny and inquiries. He states: “Unlike the more or less ephemeral media, design has the capacity to cast myths into an enduring, solid, and tangible form, so that they seem to be reality itself” (9). He explains this

concept using an example of modern office furniture and equipment. The myth shaped by magazine stories and advertisements that office work is fun, exciting, and socializing is realized and supported by those bright colours and humorous furniture. This myth-casting process carried out by designers results in industrial products embedded in myth that makes the myth seem as tangible as the products themselves. Forty expresses that for designers to design marketable products, society's need for myth must be taken into account and realized by appropriate means of production (Forty, 1989, 9). Based on his argument, here is a list of inquiries that may provoke some fruitful thinking for the later discussions on the concept of meaning.

- Does the task of designers include casting myth into objects and making myth exist in some tangible forms?
- If the answer to the above question is positive, what are its premises? How can it be realized? And what are its limits and restrictions?
- Does the difference between medium and reality lie on a "solid, tangible form" and "ephemeral" quality?
- Should designers make myth to be part of reality?
- Is the role of "myth carrier" one of an object's essential functions?

Many scholars have discussed issues, such as myth and object, media and reality, that are related to these questions. For some designers, myth conveys meaning. As a result, some consider the importance of an object is reflected on its role as carrier of myth. This popular concept, which has prevailed in the design community in the 1980s, has led discourse and practices aiming in this direction. Although this way of thinking has been very productive in terms of new approaches to design practice and methods, I consider the application of myth needs some research. To respond to these questions and to trace back backgrounds underlying some issues, here are some examples of some notions that could be considered misleading and also a brief literature review regarding meaning.

2.2.1. Meaning and Sign

Meaning, of course, belongs to a signifying system. Whenever the term *meaning* is used, a meaning situation is formed. Therefore meaning becomes an indicator, a message, or provides information which represents something else. We also use the verb "means," such as in the sentence: "he means so much to me." In this sentence, the simple term "means" carries an enormous amount of information and reality. It signifies the meaning of a person as a whole behind the sentence. In the same manner, we can pose a question: "What does 'Bach's Cantata No. 10' signify?" This is an example Borgmann (1995, 27) gives to explain the notion of signals, messages, the content of information, and reality. We should continue to ask: "What is the meaning of 'Bach's Cantata No. 10'?" Is it the 25 pages of sheet music or 20 minutes of performance? Is it the choir, trumpets, oboes, and soloists in the performance? Is it the 1.2 billion bits of information in a recorded compact disc? Or is it the audience's responding? "Bach's Cantata No. 10" is a signal, which is a vehicle that carries the message or the information it

represents. The music itself is the information. However, instead of being informed by the text "Bach's Cantata No. 10", the music can also be represented by its 164,000 bits score and text, a compact disc, or a live performance. It seems that the richer the vehicle becomes, the closer the informant is to the content of information or to its meaning. All these different levels of sign vehicles can signify the same reality, which is the music (Borgmann, 1995). Here we have a hypothesized inquiry: is it possible that the gap between the information and reality is so narrow that the information becomes the reality itself? To expand this concept to an extreme, information gathered by our senses is the only access for us to build the reality we use to understand and connect with the world. In this sense, the reality we understand is actually the information we collect.

Nevertheless, Borgmann warns that we must regain the distinction between information and reality because of the confusion they caused, especially from the perfection and the virtual reality achieved by digital information, renders "persons less personable and reality less real" (30). Information as virtual reality affects culture on manufacture and design methods, and consumption. Users and consumers are therefore "trapped" by the information they gather, such as the texts and pictures in the virtual-reality world through keyboards and buttons, rather than relying on their direct experience of reality (Borgmann, 1995).

A sign and message can represent up to unlimited information and reality. From this point of view, the term meaning can refer to almost anything in a depth of a subject. In other words, the language model and the signifying system can carry various levels of information that, at its richest level, the information is almost identical to the reality. However, we need to represent reality by means of reduced information to better communicate. For instance, here in the discussion, the meaning of an object is discussed and represented by another layer of signifying systems: the text. The meaning of an object is a world where a person engages and develops a relationship with that object, and builds his/her understanding based on this "reality". It is transformed into information or message representing the object in one's consciousness.

We can now recognize that in a sign system, objects do not necessarily play the role of sign vehicles. The meaning of an object is not equal to the sign message or values it carries. Instead, it can play one or more roles that may involve multilayered signifying systems. Additionally, objects as material things cannot be simplified to signs or messages. Reading objects only as signs is like reading a book only from its content and omitting that a book is a matter that can be stacked, written, drawn on, bumped into, touched, smelled, and purchased. From here, we can also see why the language model then becomes inadequate and inappropriate to totally understand the meaning of objects.

2.2.2. Some Misleading Notions Regarding Meaning

The meaning of an object is more than the sign value it carries or its symbolic meaning

Saussurean semiology and Peircian semiotics have been dominating the study of signs since the beginning of this century. In order to distinguish the sign value from the meaning of an object, the concept of sign from some developed models and theories on signification is discussed here. Based on Saussure's theory, Barthes points out that linguistics is only one department of the general science of signs, or semiology. The system of signs also includes other cultural manifestations, such as fashion, cuisine, and advertising. There are three elements in semiology: the signifier, the signified, and the unity of the two. As Saussure (1966, 67) states:

I call the combination of a concept and a sound-image a sign, but in current usage the term generally designates only a sound-image, a word, for example (*arbor*, etc.). One tends to forget that *arbor* is called a sign only because it carries the concept "tree," with the result that the idea of the sensory part implies the idea of the whole.

Ambiguity would disappear if the three notions involved here were designated by three names, each suggesting and opposing the others. I propose to retain the word sign to designate the whole and to replace *concept* and *sound-image* respectively by *signified* and *signifier*; the last two terms have the advantage of indicating the opposition that separates them from each other and from the whole of which they are parts.

In the system of Saussurean semiology, language is understood as a structure codifying meanings with words. The structure contains two axes, one is the syntagmatic axis and the other is the paradigmatic axis. On the syntagmatic axis, words convey meanings by the existing context in a sentence. The rules that govern the placement of each word in a sentence are called *syntax*, which is used to arrange words and define meanings in language. In addition to the syntagmatic axis, the paradigmatic axis concerns not the context, which is the relation of words to each other, but the usage of individual words that convey meanings. The rules that govern the usage of words are called *semantics*. For instance, the word "flowery" implies a series of meanings of youth, feminine, beauty, spring, and other associated meanings. These are the potential uses of "flowery". For Saussure, language is defined by relations, which are governed by syntagmatic and paradigmatic relations. And because he considers all cultural phenomena are structured by the relations and contrasts of these two axes, cultural phenomena can also be seen as systems of signification from the perspective of semiology. The sign is a unity affected by culture that unifies signifier and signified; and the codes are the roles of combination that govern the presence of the syntagmatic and the paradigmatic axes in a system of signification. In the view of semiology, since the embedded intentionality of language is communication and all culture is structured as language, the system of signification, which embodies all cultural manifestations, is also a mode of communication (Gottdiener, 1995, 5-9).

Based on the above concept, *myth* as a cultural phenomenon, and *symbol* as a term is sometimes confused with sign and can also be read as elements in the signifying system from the perspective of semiology. Barthes (1972, 111) explains that “myth is a type of speech.” However, it is not any type of speech, he points out, it is a mode of signification, a form, a message, and a system of communication. He further expresses that myth cannot be an object, a concept, or an idea; instead, it is “a type of social usage which is added to pure matter” (111). An object, for example, that carries myth is something that stands for something else. Also, an object can become a speech if it means something. Nevertheless, to regard objects and myth as forms of speech doesn’t necessarily mean that they should be treated like language; they should both belong to the general science of signs and coexist with language (Barthes, 1972, 111).

Symbol is a rather direct corresponding relation between signifier and signified from a semiological point of view. A purely symbolic state refers to a direct connection between a signifier, i.e., an object, and a signified, i.e., a specific idea. This is the case of many symbols, such as a cross, a totem, a snake pattern, all have corresponding meanings in certain cultural communities. The meaning of objects can not only be studied from their purely symbolic relations but also from all other aspects of signification attached to collections of objects (Barthes, 1988, 180). Symbolic explanation, linguistics, and mythology are some approaches to scrutinize an object’s meaning. In short, to study an object as a carrier of myth and symbols does not exhaust its meaning. Furthermore, It will be pointed out that the sign value of an object does not reveal all its meaning either, following the discussion on Peircian semiotics.

The school of Peircian semiotics embraces a broad ideology concerned not only with communication and speech but also with the “object world” behind the system of signification. Unlike the two-part relation, signifier and signified suggested by Saussure, Peirce (1931) proposed a model of sign which is triadic: 1. representamen, a vehicle that conveys ideas to mind; 2. interpretant, an idea used to interpret the signs; and 3. object, a thing that the sign represents. He writes:

A sign stands *for* something *to* the idea which it produces, or modifies. Or it is a vehicle conveying into the mind something from without. That for which it stands is called its *object*; that for which it conveys its *meaning*; and the idea to which it gives rise, its *interpretant* (Peirce, 1931, Vol. 1, paragraph 339).

The “interpretant” in Peircian semiotics is very much like the “signified” in Saussurean semiology, and the “representamen” is similar to “signifier” (Gottdiener, 1995, 11). The object world serves as a reference of semiosis and always exists and plays a role in signification. Semiosis is a process of cognitive relation between interpretant and representamen. The role an object plays as sign is twofold in Peirce’s conceptualization. According to J. Jay Zeman, one exists in a “public forum,” and the other in a “private forum.” In a public forum, an object is a sign that empirically affects the public and is publicly describable. It is therefore accessible to everyone

who shares the recognition of the sign. On the other hand, in a private forum, an object is a sign that exists only in the individual's consciousness. A sign in a private forum becomes an abstract element that is unique to every conceiver and becomes a cognitive artifact in one's consciousness (Zeman, 1976, 22-39).

However, the above discussion does not imply that the meaning of an object is generated only from its role as sign. According to Osgood (1953), meaning has various dimensions including representational ones and also volitional and emotional ones. According to Jacques Derrida, meanings are deferred: there is no final resolution with a single meaning, but a range of intertwined connections that create differences of meaning. An object's representational meaning is only one dimension in a meaning situation. Peirce proposes several aspects of signs – three forms of them, including symbol, are considered most important and commonly discussed (Pearson, 1977):

1. A symbol is a conventional sign regulated by culture, and through use and experience by the members in a cultural community, its meaning grows. A symbolic sign is a vehicle which stands for something that is established and based on habits and forms in a certain culture. For instance, a weigh scale symbolizes justice, and a feather symbolizes lightness.
2. An index is a sign established through pragmatic understanding and experience of the material world. It is rather unmotivated. Its meaning correlates are relatively fixed and are not produced by cultural conventions or codes. For instance, smoke is an index of fire, and thunder is an index of storm. Peirce uses examples of index to show how the material world makes sense through experience instead of cultural conventions.
3. An icon is a sign less motivated than a symbol and more motivated than an index by society. It conveys an idea by virtue of characters that are very similar to the actual thing, which can be an event, an attitude, or an object. The iconic sign is also called *hypoicon* by Peirce, who distinguishes three kinds of hypoicons: images, diagrams, and metaphors. For instance, an object as an iconic sign can deliver meaning through the reproduction of an image, such as the VW Beetle and the image of a beetle. An object can also function as an iconic sign through metaphor, such as the form of streamline that indicates speed. In this case, the object as an iconic sign expresses meaning of fast moving through its metaphorical form (Vihma, 1994, 68-70).

In Peirce's model of significations, objects do not necessarily communicate messages intentionally as language does. In the instance of an object as an index, it possesses no intentionality or motivation to speak for something and only serves as referential background underlying the signification. A fur coat may mean nothing more than that the person who wears it is cold (Gottdiener, 1995, 22). Here the coat functions as an index rather than a symbol. However, in most situations, texts can only function as symbols rather than indexes. Therefore, based on speech or other linguistic-like structures, Saussurean semiology has its weakness due to its unsatisfactory explanations on some cultural phenomena such as the above example of the fur coat.

Nevertheless, does Peircian semiotics serve as a complete model for exhausting the meaning of an object? To answer the question, we have to clarify at least two levels of the meaning-creating process as defined in Chapter 1. It seems like a paradoxical situation: at one level, an object enters the meaning-creating process in our consciousness and becomes a sign immediately; however, an object does not have to be a sign in another level of meaning process in order to make sense in our consciousness. In other words, a user may perceive and consume an object as a sign, or consider it as a pure utility; in either case, the object means something to the user and therefore becomes a sign in a meaning situation. In the first scenario, the object has been involved in a meaning situation before entering the user's consciousness. The sign that an object bears is similar to the sign in Zeman's concept of "public forum", which is constructed by one or several cultural groups. In the second scenario, the object enters the user's consciousness in a "degree-zero" condition (a phrase used by Baudrillard and Barthes to refer to a "degree-zero" level with nothing beyond, such as buying an object solely for its utilitarian feature, or the neutral modes of writing called the "degree-zero writing"). The object then becomes a sign in a "private forum" being realized individually by every perceiver. According to Baudrillard (1996, 141), there are no degree-zero objects; every object enters users' consciousness delivering more or less messages beyond its original use. The sense-making process is synthesized, objects achieve their significance by actively participating the sign process in the transactions between them and the perceiver, rather by meanings projected on them (Csikszentmihalyi, et al., 1981, 43-45). These two modes of sign, the sign meaning carried by an object in a public forum and the object as a sign in one's consciousness in a private forum, construct the meaning of an object as a whole.

The notion that the production of meaning requires reader or perceiver participation can relate to the reception theory. It "refers throughout to a general shift in concern from the author and the work to the text and the reader" (Holub, 1984, xii). The theory was proposed as an approach to study literature in the 1960s, and has been employed in other areas of studies that involve the "text-reader relationship". The theory directs attention from the "author" to the "reader" in a broad sense, such as studying a piece of art by the process of interpretation itself rather than by the object's substantial form and colour. Here, since an art object is meant to be "perceived" instead of being "recognized," the role of the recipient is of primary importance. In a sense, the recipient makes "the object come alive again" by a meaning-creating process (Holub, 1984, 17). Barthes (1972, i) expresses a similar view: "the meaning of a work (or of a text) cannot be created by the work alone; the author never produces anything but presumptions of meaning, forms, and it is the world which feels them". According to Wolfgang Iser, the literary work is a combination of text and the subjectivity of the reader; the interaction of the two results in the meaning of the work. Furthermore, the act of reading affects the reader's self-awareness. Through assimilating the experience in the text, the reader may discover their unrecognized

consciousness especially when the text depicts an alien experience. Iser (1978, 158) considers reading as a medium through which the reader comes to realize oneself:

The constitution of meaning not only implies the creation of a totality emerging from interacting textual perspectives ... but also, through formulating this totality, it enables us to formulate ourselves and thus discover an inner world of which we had hitherto not been conscious.

Reception theory emphasizes the process of interpretation in understanding the literary work. The reading process not only plays a creative and integral part of understanding, but also influences the reader to be aware of one's consciousness in the "image-making" activity of meaning creating.

The meaning of an object is not equal to the sign value it carries or its symbolic meaning, but includes them. The role of an object is not restricted to a sign vehicle or signifier in a signifying system; rather, it is an active attribute to meaning situations in various ways. An object can contribute to the meaning process as a tool, a sign, a symbol, or can perform intriguing roles that can be performed by even a pet or a plant. The meaning interpreter also plays an important part in the meaning process; the same object can yield different responses and be understood personally. For a more detailed discussion of the relations of meaning and signification, the following discusses why the use of linguistic models for understanding the meaning of objects is inadequate.

Linguistics is an inadequate model for understanding the meaning of objects

Applying a model from linguistics to study the meaning of objects has been misleading and criticized. Reviewed here are some of their arguments along with opinions of those in favour of linguistic models. Before presenting the arguments from both sides, a brief introduction is given to a closely related term to this subject: semantics, which has been broadly applied and has caused confusion especially in the design community.

As a term in semiology, semantics originally referred to the rules that govern the usage of words at the paradigmatic axis in the structure of language. Semantics has also been applied to study cultural systems. For instance, in food systems, semantics rules a series of options with variations on types of dishes under certain categories of appetizer, entrée, or dessert. Its role is opposite to that of syntax, which governs the sequence of dishes in a meal in food systems. Max Bense, who was an instructor at the Ulm school of design, develops a model of design theory based on Peirce's semiotics. He illustrates a model composed with designed objects in the centre surrounded by four dimensions. The four dimensions are material, syntactic, semantic, and pragmatic dimensions. The pragmatic dimension is conceived to be embracing the other

three other dimensions. The semantic dimension includes the form of a designed object in this model (Vihma, 1995, 24). Therefore, to search for the form that speaks for an object is to search for its semantic aspect if we adopt this model. For instance, a series of morphological changes can be applied through the rule of product semantics in order to fulfil and speak for an object's certain function or purpose of a specific part. It also means that designers can make a variety of choices of forms based on product semantics to represent a specific function and use of a product.

The term semantics then becomes a part of the theory of product language, along with the other part, the "formal" (Gros, 1983, 63). After a series of design studies on the topic of product language in the 1980s, product semantics soon becomes a prevailing phrase in the design community especially because of the promotion by magazines, such as *Innovation*, an official magazine of IDSA, and academic institutes, such as the Cranbrook School (Krippendorff, 1994, 148). The feature of self-explanation of a product is considered central in the theory of product language. In the system of product language, "self-explanation" is a sign representing a product's *practical functions* and *sign functions*, the latter include both *indicating* and *symbolic functions*. Semantics helps designers design products so that users can identify products' quality of "self-explanation". For instance, product semantics can be used regarding practical functions by designing an expressive handle that is able to guide a user about how to grasp it. The indicating functions can be applied by designing a group of products which are recognizable as a product family. And regarding the symbolic functions, a kidney-shape table can be designed to symbolize the atmosphere of the 1950s (Vihma, 1994, 37-41).

Since semantics represents function and the purpose of use through form that a product can speak of in product language, product semantics almost becomes synonymous with product meaning. The thinking considering semantics as the way humanity gives meaning to things is common among theorists who privilege linguistic models for the study of meanings. Barthes gave a description on how objects relate to meaning, sign, and semiology in his article, "Semantics of the Object" written in 1963. He writes:

Till now, one science has studied how humanity gives meaning to articulated sounds: this is linguistics. But how does humanity give meaning to the things which are not sounds? ... because everything which signifies in the world is always more or less mixed up with language, ... it is in this general context of a semiological inquiry that I should like to offer some rapid and summary reflections on the way in which objects can signify in the contemporary world (179-180).

For Barthes, all objects belonging to a society have meanings; thus they are always signs. According to Barthes, signs are defined by a symbolic coordinate and a taxonomic coordinate (coordinate of classification). The two coordinates are similar to a product's sign functions, as

described earlier, including symbolic and indicating functions. The indicating functions help users sort and classify objects. For example, parts of a machine are sorted into nuts and bolts. Barthe's fundamental concept based on linguistics is evident in his use of a sentence as a metaphor for an object. He states: "we must avoid comparing the object to the word in linguistics, ... for the isolated object is already a sentence" (186). The object as a sentence is polysemous, he explains – it can achieve a meaning by the rule of syntax, at the syntagmatic axis, and of parataxis, at the paradigmatic axis (Barthes, 1988, 186). Likewise, designer Charles Burnette (1994, 120) claims that product semantics is "the capacity of a product or communication to afford meaning through its form and use." He proposes "seven dimensions" of product semantics to explain how designers can use methods regarding these dimensions to design products that afford meanings.

Nevertheless, what are the differences between language and objects while they both have meanings and function as meaning bearers? Why has the model of product semantics and linguistics been criticized and gradually abandoned by some designers? A brief review on reasons from different disciplines is summarized below.

In *The System of Objects*, the influence of the newly developed semiology can be observed in this early work of Baudrillard written in 1968. He pointed out that the language model can be applied to understand technology only under certain circumstances. He stated: "the system of objects, unlike the language system, cannot be described *scientifically* unless it is treated in the process as the result of the continual intrusion of a system of practice into a system of techniques" (Baudrillard, 1996, 10). The reasons why the system of objects cannot be described scientifically without the premise are:

1. Technology, unlike language, does not constitute a stable system. In the linguistic system, the connotated meaning at the level of speech does not significantly affect the denoted structure at the level of language, such as whether a rolled "r" or uvular "r" is pronounced in speech changing nothing in the linguistic structure. However, the technological system, which is the essential sphere, has always been evolving and altered by the connotation of objects created from the psychological and sociological domain, which is the inessential sphere. Technemes in the language of technology are continually evolving. Phonemes and monemes in language are relatively stable.
2. The technological system, unlike the linguistic system, is less easily dissociated from praxis than communication. According to Baudrillard, the reason is that the purpose of technology is to master the world and satisfy needs, but the purpose of language is to communicate.
3. Technology, unlike language, has external constraints on production and consumption. Technology has to rely on social conditions that are not applied to language (Baudrillard, 1996, 10-11).

Although Baudrillard presented these differences between linguistic and technological systems, we can see the influences from linguistics and from the works of Barthes, such as *Elements of Semiology* and *The System of Fashion*. Throughout *The System of Objects*, Baudrillard is concerned with how language is *spoken by* objects and addresses the contradictions experienced from the practical system and the technological system.

Gottdiener criticizes the “linguistic fallacy” as one of the limitations of postmodern semiotics. He points out that the belief in cultural systems, such as food and fashion, can “speak” and function as language is no longer the view held by contemporary semiotists. The reason that results in the linguistic fallacy, according to Gottdiener, is a failure to distinguish different levels of semiosis. To be specific, that there are denotative and connotative levels. In the first-order of signification, the denotations, objects may mean nothing more than their own functions. In the second or higher-order significations, the connotations, socially-inscribed message enters the domain of meaning. Objects then become cultural signs, which carry messages as their connotations that communicate intentionally. It is at the stage of connotation that the role of social context and the relevance of semantic fields require recognition. This concept of different layers of meaning, and the meaning layered upon meanings as products of social processes are central to socio-semiotics (Gottdiener, 1995, 66-67).

As a designer, Richardson contends that language is “a misleading model” that has dominated the interpretation of products and led to developments such as product semantics. Objects (or his term, pro/jects) are closer to written texts than to the spoken words because, as an author of written text, a designer has no control over situations that the “reader” may encounter. The readers vary significantly in their knowledge and backgrounds and so do the contexts in which objects are engaged. However, to see objects as written texts does not satisfactorily explain the fact that objects are rich and various in meanings. Richardson lists three reasons why objects cannot be simply read as texts:

1. Unlike written texts, designers have very little control over the context where the user engages the object. A written text is usually presented in a pre-determined order, while objects are used in not completely predictable environments with other objects involved. According to the research conducted by Grant McCracken (1988), participants read the outfit on people from photographs in a non-linear way. The clothing is interpreted as a whole without a uniform sequence or order.
2. Objects have less freedom to express their concepts than language allows. They are material matters that are severely constrained by their physical limitations and by the user’s experience. In order to make sense as a sentence does, objects, such as clothing, can only be arranged and combined within certain limits under the user’s expectations. According to McCracken, clothing, which expresses novel messages, encounters difficulties from users’ understanding and acceptance.

3. Linguistic models do not accurately depict the designer's thought process and methods of interpretation. Designers do not perform a sequential or textual reading of objects and related elements while designing. To foresee how users will interpret design objects, designers have to analyse objects from various stages and perspectives to correspond to the ways users employ (Richardson, 1994, 115-116).

To replace the linguistic model, Richardson proposes an alternative model of "gesture," which is discussed in Chapter 3.

In addition to the above arguments on the misleading uses of linguistics as a reference for the analysis of product meaning, here are two more points regarding the issue:

Unlike language, objects do not have to possess shared symbolic meanings in order to produce meaning and to communicate

The essential elements that construct language are symbols in the conventional use of language. The term "essential" does not represent the meaning of "essential" unless we both understand the language, which contains the symbolic correspondence composed by monemes and phonemes, and the term then becomes understandable. Without this shared understanding on symbolic meanings, a printed article in a foreign language is merely a composition of symbols that makes sense at a pictorial level. It communicates only its marginal meanings, generated from the shape, colour, style of the texts and the page layout, but the denotation of the article remains unknown. Objects perform meanings in a very different way. They actively engage our lives and change the content of what we live and what we think, and therefore function as both reflexive and creative attributes (Csikszentmihalyi, et al., 1981, 37). They do so without necessarily becoming recognizable symbols to participate in our psychic activity of meaning creating. A hammer can create meaning solely through one's use, and the cultivating process between the user and the hammer can be unique without being referential to symbols. As a result, people living in different cultures can independently develop their own signifying systems on the individual and social levels. The myth of product semantics is based on the belief that there exists a language which is recognizable and shared in a given cultural community. The myth indicates that if the language is properly implemented, a handle is able to *speak* the language such as "turn me" or "push me".

While this is partially true, one has to be reminded that meaning cannot be projected to objects in a superficial way. As Krippendorff (1994, 153) argues: "it is obvious that meanings are not entities that could be designed *into* machinery or attached to their surface, using separately meaningful symbols, for example." The pursuing of a common product language leads to movements such as the International Style or standardization of product forms and symbols. The myth of shared product language and symbolic meaning omits that there is a very personal, subtle, complex, volatile, and diverse meaning-generating process of cultures and individuals.

Objects produce meaning in a holistic way

In product semantics, objects are interpreted as aggregates of segmental parts. This view is reflected in symbolic relations between an object and a signified, where an object “given in its entirety, nonetheless signifies by only one of its attributes.” An orange is therefore interpreted as “the juicy plus the orange”, and becomes a natural object that sustains its symbolic meaning or sign (Barthes, 1988, 186). For the example of design products, some designers intend to give meaning in a similar way of segmentation by adopting the method of product semantics. Burnette (1994, 123) interprets his own design, a desktop fan, that affords all seven dimensions of semantics proposed by himself:

Solar Fanny contrasts a high tech solar panel with forms reminiscent of the old desktop telephone. Three rechargeable batteries hide under Fanny's skirt (above Micky Mouse's shoes), the switch is in an area of sexual potency, and the forms and location of the collector and fan express the concepts “sun in your face/wind in your hair.” The integration of mechanical and anatomical form seeks to capture the iconoclastic, inventive, nostalgic charm of Duchamp's era in a salute to a time and an artist whose creative rule breaking now seems part of an heroic past.

Here arises a question: “Do users interpret the product the way the designer intends or wishes to?” Probably only very few users can fully capture those implemented meanings in the case of Solar Fanny. As McCracken (1988, 65) points out in his research on pictured clothing, the subjects treat “the outfit as an ensemble to be interpreted as a whole.” An object performs as a functional utility through use by joint efforts of its functioning parts. It also contributes to a user's pleasurable experience by its surface, shape, weight, form, smell, colour, sound, material, and size, some of which are closely related and inseparable. A book is not reducible to its content, or seen as a material object to sustain texts or symbols. The reading experience includes the smell of the paper, the sound of flipping pages, the tactile engagement with its cover and signature, and also the awareness of being seen as a reader. All these elements produce meaning in a holistic way and are different from user to user.

The theory of language has surfaced in design methods, products, and discourse since the phrases “product language” and “product semantics” were introduced. The phenomenon of vocabulary colonization from the study of signs in the design world has pulled designers into directions of creating novel stories and symbolic connections revealed by design products, especially through their forms, colours, materials and surfaces. This phenomenon is plausible only under the premise that designers understand the limits of sign language and modify the semantic model according to the differences between the two systems, product and language, and their bodies of knowledge. Thus far, the first two questions of casting myth into design asked in the beginning of this chapter have been partially answered. Myth and symbols, as two aspects in the system of signification, are two approaches through which objects become

bearers of signs. However, it is the goal of “meaning,” not of “sign” that we have to confront in seeking more pleasurable and responsible design.

2.3. Meaning and Design

2.3.1. Why Meaning Matters to Design

The preceding discussion explained the relationship between meaning and function, fundamental concepts of meaning, and its relations to sign, symbol, language, and myth. Here we will examine the importance of meaning to design. Meaning is central to design and can be elucidated at least from three respects: the purpose of design, design evaluation, and design method.

The importance of meaning regarding the purpose of design

Although design surely has no single goal that is publicly adopted, here we may employ a general concept: “responsible design” to represent the goals of design activities. To achieve responsible design, we need a method of measurement to guide design approaches and methods and to measure the gain and loss after design interventions. There exist some guidelines, such as pleasure, aesthetics, efficiency, safety, environmental sustainability, and ethics; each of these guidelines represents a domain of responsibility that needs to be shared and taken into account. Nevertheless, all these guidelines must eventually confront the human value system. Need and meaning are two obvious targets associated with the system; and meaning is a need to human beings. One of the premises of socio-semiotics is that “human beings act toward things on the basis of the meaning that things have for them” (Denzin, 1992, xiv). Similarly, William Less (1990, 74) proclaims that human behaviour is underscored by values, which also posit needs, rather than by needs alone. We not only act on the basis of meaning and value to place ourselves in our immediate contexts, but we also need meaning to build our orders in consciousness and to survive (Csikszentmihalyi, et al., 1981, 21). Meaning functions as an appropriate criterion to measure the social responsibility of designers. It reflects the concept of relativity rather than absoluteness; therefore meaning measures more accurately than other options in terms of improvements in satisfaction and well being. The most primitive people possess very limited material; however, they are not poor. Because “poverty is a social status,” it is not measured by the absolute amount of possessions but by the relation among people (Sahlins, 1972, 37).

The conflict between human needs and material constraints becomes a challenge of design ability and responsibility. However, to scrutinize the dilemma from a different viewpoint, this conflict is actually trapped in the ideology of what John Hirst calls “scalar thinking”, by which he

means a conception that is constructed by signification of scale. In this conception, ideas are compared with scales: e.g., good, better, best. To follow this thinking, the best commodities are the rarest, and the most valuable products are the most time- and labour-consuming ones. For instance, the possession of furniture made of precious woods, and historic antiques become measuring scales and symbols of social status and quality of life because they are rare and time demanding (Hirst, 1996, 39). Hence designers face a dilemma between being responsible for pleasurable experience and human needs, and for other respects of responsibility such as ecological sustainability and social equity. Csikszentmihalyi, et al. (1981, 230) call the habit of consumption as an end in itself “terminal materialism” as opposed to “instrumental materialism.” In terminal materialism, the material possession becomes a goal by itself and the acquisition of artifacts is superficial in that they serve only as status symbols. To alter this trend and to resolve the conflict, one promising approach is to reshape our value system and to develop a new product culture, since “the only weapon we have against the deadly power of a terminal materialism is the human ability to create meaning” (235). A meaningful life is context associated. It builds on the fulfilment of goals and enjoyment within an individual’s immediate context, in which products are capable of extending our abilities toward such goals. Need then becomes a very personal concept, takes place in one’s meaning system. As a result, it transforms the culture of products from objects as social symbols of status to objects as means for self accomplishment and pleasure. Meaning helps guide the direction we choose to proceed in technological development, and alters the absolute concept of needs and wellbeing into a relative and context-based one (Csikszentmihalyi, et al., 1981, 246-249). Therefore, designers can accomplish the need for comfort, pleasure, and quality without sacrificing other aspects of needs and responsibilities such as social justice, environmental sustainability, and economic development.

To observe the correlation between meaning and the purpose of design, we can also view it from the boundaries of the design discipline. Design is a discipline concerning the conception and planning of the artificial, where function has always been a main issue. Recently, meaning, which is also a function of design products, has been suggested as a criterion used to distinguish the professional ability of designers from that of others. The ability and responsibility of meaning creating are unique to designers, according to Krippendorff. He argues that the expertise and knowledge of meaning certify the ability of designers and draw a boundary between the design discipline and others. Design has a tradition of being a general discipline rather than a profession; it seems that everyone with a good sense of aesthetics and logic can practice design (Krippendorff, 1994, 154). However, if we adopt Krippendorff’s concept regarding meaning being central to the design ability, we can then empirically test and explore meanings on the user interface or on other large-scale systems to affirm the designer’s ability and expertise. Therefore, the designer’s responsibility is able to be defined. This is a promising direction for the design discipline rather than a novel proposal. This study can serve as a supportive material to this goal.

The importance of meaning regarding design evaluation

Meaning is a useful model to evaluate the outcomes of design interventions. We can measure the efficiency of a working environment by means of ergonomics, or measure the environmental impact of a product in material terms by means of life cycle assessments; but how do we measure enjoyment, satisfaction, aesthetics, and other elusive but important attributes? To search for depth in design is a journey towards meaningful design. Contrarily, a disposable world is full of refuse with "objects without depth that leave no trace in our memories" (Manzini, 1995, 222). It is depth of engagement that requests and allows depth of design, remarks Borgmann (1995, 17). Designers must design engaging artifacts based on the understanding of cultural contexts and value systems to achieve meaningful design. The expectation of engagement is diverse among users and cultures. In some cultures, people spend a long time cooking and dining, and the activities themselves are enjoyable and engaging. This calls for engaging design of cooking and dining utensils so that their capacities to participate in the festive culture help the users cultivate the engaging process. In some other cultures, meals, especially lunch, belong to daily domesticity, and therefore the users demand less engaging experiences. The task of searching for depth in design needs a system of reference in order to develop design criteria and to evaluate design performance. This is where meaning becomes an appropriate model of evaluation in terms of user engagement.

We have been using ergonomics and human factors as means for improving the relationships between users and artifacts, but they should not be confused with models of evaluation. Ergonomics is not a design discipline according to renowned designer, Gui Bonsiepe (1991, 20). It is a discipline that pursues the effectiveness and efficiency with which work and other activities are carried out. The objectives of human factors include not only the enhancement of effectiveness and efficiency but also human values, including safety, comfort, user acceptance, job satisfaction, and quality of life (Sanders, et al., 1991, 4). Patrick Whitney (1995) lists four human factors considering physiological, cognitive, social and cultural factors. Physical human factors, included in the domain of ergonomics, are related to performance of the human body. Cognitive human factors include knowledge, interest, and cognitive ability. Social human factors concern "a group's ability to work together" (14). And cultural human factors focus on "values and patterns of daily living" (16). Ergonomics and human factors are means rather than ends, disciplines rather than fields. Their relations to design are similar to that of material culture to cultural history and cultural anthropology. Ergonomics and human factors are useful methods to help maximize performance of the artifact and enhance human experience, but they are not ends by themselves. In other words, evaluation in design demands a system of reference, which can reflect goals and purposes of design, rather than a system that is supposed to support certain tasks and purposes.

On the other hand, meaning is itself a goal. Along with function, it embodies other purposes of design, including the good, just, useful, and pleasurable, proposed by Buchanan (1998). The discipline of human factors intends to enhance the performance of products. To be more specific, it does so through intervening in the roles of products, for forms of performance determine the roles they play. Through adjusting the roles of products, designers achieve goals in the systems of meaning and function with the help of human factors and other disciplines.

The importance of meaning regarding design method

In the Definition, *meaning* is defined as being generated from processes. This concept underlies an action-driven and relation-oriented perspectives that influence design methods and approaches. While meaning is adopted as a central consideration in design, the focus of design method shifts from designing the physical object to designing the process and the situations. This argument is similar to the shift of focus from the traditional “consumers” to the present “users” in the design community while serving the market is no longer the only concern but the needs of human beings have become an additional and important one. To carry out meaningful design, designers have to conceptualize the processes, actions, and relations in addition to the artifacts themselves, and consider aesthetics, usability, and semantics, not as fixed qualities but as active ingredients in user engagement. Above all, the lifeworld “can be experienced only as a temporal process that takes place spatially,” Bernd Meurer (1997, 120) writes. He argues that designers should focus on the process of change and interaction driven from the process-oriented nature of our experience rather than on the object as form. This leads to a dynamic concept of design, he expresses, that focuses on creating new tasks rather than solving old ones, develops new approaches of identifying problems rather than creating unquestionable solutions, and accepting uncertainty as part of design creativity (Meurer, 1997, 126). A design method oriented towards meaning reflects a more realistic world in which artifacts are engaged through process and action. This approach generates a more humane concern based on dynamic contexts and user experiences than the material-oriented approach.

2.3.2. Meaning Creating and Design

Three dimensions of meaning situations in user engagement

Artifacts have been considered to have decisive effects on individuals, society, and the environment. On the level of the individual, artifacts influence a person’s thoughts and actions, reveal and conceal one’s abilities and goals, and help develop the self. On the level of society, artifacts play an irreplaceable role in the manifestation and survival of culture, affect social orders, and realize and embody social purposes and goals. And on the level of the environment, artifacts constantly modify the landscape in which human beings and other species live, affect the ecological systems, and affect the man-made environment. All of the above are sources of

meaning an object can possibly afford and transmit. Here in the discussion, the scope is narrowed down to three dimensions of meaning-creating situations, focusing particularly on the level of the artifact's effects on the individual.

In engaging an object, a user experiences usability, pleasure, comfort, memory, and other sensory, intellectual, and emotional engagements

The meaning of objects can be generated from the user's responses and feelings. The idea that the meaning of an object has a responsive quality stems from Behavioural Psychology. From its standpoint, the meaning of an object is possible to be observed, measured, and exhausted from the conception of action and responses of the meaning perceiver (Watson, 1919, 110). Similarly, in Gestalt Psychology, meaning has a physiognomic quality such as the emotions reflected in a person's facial responses (Krampen, 1989, 126). A cup of coffee on a meeting table means more than a container holding a drink to ease thirst. A user may acquire a feeling of comfort when holding the warm cup, use the action of drinking to cover nervousness or to postpone a statement, enjoy the aromatic smell, rely on the caffeine to keep awake. The impression that a meeting with coffee cups on the table may imply a more relaxed and informal atmosphere. The meaning of objects is observable through the meaning perceiver's emotional responses and other reactions.

Through engaging an object, a user's abilities and goals may both be extended and limited

The meaning of an object can also be observed from its capacity of mediating a user's ability, goal, action, thought, and shaping of her/himself. Objects possess disclosing power. For instance, with paint brushes a painter can visualize thought that otherwise cannot be seen. With cooking utensils a chef can disclose the goodness of food. With media, users are able to extend their bodies, senses, and thoughts.

Ron Levy (1993, 8) lists various aspects of technology's disclosing, protecting, and concealing power regarding human abilities:

The extension of human senses (telescopes, hearing aids, etc.), physical and locomotive activities (tools, transportation, etc.), expansion of human expression (music, art, film, etc.) and human mind (computer, the use of electrochemical processes, etc.), the substitution of human efforts (robot, machines, etc.), and the diminution of human vulnerability (hygiene, medicine, etc.)

Through objects users can accomplish their goals, but are also restricted by certain allowances, such as some restrictions designed for safety considerations.

In terms of expanding and expressing the self through artifacts, a radical concept regards artifacts as the extended phenotype of genes. The phenotype is defined as the "totality of the

characteristics (the appearance) of an individual resulting from the intervention of the genotype (genetic program) with the environment during ontogeny" (Mayr, 1976, 10). The argument of extended phenotype is held by some geneticists, who consider that the ability for constructing nests and modifying landscapes of some species can be seen as their extended phenotype embedded in genes. Richard Dawkins (1982, 198) observes: "In a very real sense [a spider's] web is a temporary functional extension of her body, a huge extension of the effective catchment area of her predatory organs." This concept stretches the traditional understanding that the phenotypes are only shown on bodies or on behaviours, such as the colour of eyes, to the outward environment, such as the modification of landscape and the making of tools. The ability to create, communicate, compose music, use tools, and other forms of disclosing our potential may be traced back to our inherent genes and be realized through diverse forms of artifacts.

In turn, artifacts are also important to construct the self, shape our behaviours and thoughts, posit our social and cultural status, and develop order in the mind by which we understand the world. George Herbert Mead (1934, 154) emphasizes that an object can evoke the emergence of a user's unique personal traits while interacting with its peculiar physical characteristics through use. In some cases, users can become practitioners of the sign functions of artifacts. Users' behaviours related to how to engage with a material space is being modified by artifacts. For example, regardless of location, users tend to behave similarly in some common spaces such as a McDonald's restaurant, international hotels, or airports, where users follow universal symbols and patterns of actions (Gottdiener, 1995, 73).

By engaging with an object, a user develops a different relationship with people, other objects, and the environment

The car alters our concepts of distance and time; the telephone and computer networking change our concepts of space; the hiking backpack increases our accessibility to nature; the television reshapes our social structures; and the refrigerator reforms our patterns of daily schedules. Almost every object introduced into a society changes the way people organize, experience, and conceive their lives in a minor or major way. As Csikszentmihalyi, et al., (1981, 46) write: "Innovations developed to cope with a specific problem have a way of changing the way people do things and of altering how they relate to each other; eventually they affect the way people experience their lives." The focus here will be on impacts of both a "new" object and an old object that plays a new role toward changes of the relations in users' lives. A personal anecdote told by a teacher of mine about his transportation is relevant here. When he was young, the only transportation he could afford was a bicycle. Occasionally, his girlfriend at that time sat on the front bar of the bicycle, with her body embraced by my teacher. Soon, he got a motorcycle; his girl friend sat behind him with her arms surrounding his waist. Then she became his wife and he could finally afford a car. They now sit side by side in the car. Different types of transportation determine the pattern of physical engagement between them from a closer to a more distant one. Riding a motorcycle with his wife "means" they have a more intimate physical

relationship than driving a car. A “new” meaning can also be created from an old object that plays a different role. For instance, the first car in a family gains a new role when the second car is introduced. The first car may then be available to other family members who did not have the same opportunities to drive as previously. Thus the change influences the interdependence of each other in terms of mobility. Although the first car does not change physically, its new role contributes to its new meaning for the users.

Objects can create meaning being physically present or absent in a meaning situation. Many engagements are achieved indirect ways, in which objects are transformed into abstract forms perceivable to a user’s consciousness. A user can engage with a city, through media, stories, music, literature, memory, food, or other people’s experience. They may be more engaged with Rome consciously than a town next to where they live or a city they pass through everyday during their commutes between home and work place. Engagement can also happen across time spans as a user engaging with an expecting gift in the future or an old house used by ancestors a century ago. The subject of engagement can also be fictional as long as it plays a role that channels the psychic energy of the user. A user may *recognize* their neighbours and see them everyday; nonetheless, they may *perceive* the music of Glenn Gould and engage with the pianist much deeper than the person who lives next door. In the following, modes of meaning-creating processes are identified, including the differences between perception and recognition, that can be applied to one or more dimensions of meaning situations described above.

Modes of meaning-creating process

Scholars have investigated the process of meaning creation with various opinions corresponding to their purposes of studies. Psychologists are interested in how we invest our psychic energy in objects so that they make sense. Cultural materialists emphasize the effects of objects on culture and the formation of cultural symbols and meaning in meaning situations. Designers are particularly interested in knowing how to create more pleasurable user experiences by studying the modes of engagement between users and products. Although the goals of studies are various, there are some common opinions between disciplines. There are, the importance of user experience and everyday life engagement in meaning-creating processes. Observing and analysing from a design perspective, models are reviewed here within the scope of user engagement followed by a discussion on the correlation between design interventions and these models.

Perception, attention, and goal

Based on their psychological background, Csikszentmihalyi, et al. consider aesthetic quality, attention, and goal as three elements of person-object transactions. The term “transaction” is used in John Dewey’s sense that “an element of any act of intelligence only gains its meaning in the context of the transaction itself” (Csikszentmihalyi, et al., 1981, 175). In the subject of

aesthetic experience, Csikszentmihalyi, et al. base their discourse on Dewey's aesthetic theory that recognition and perception are different modes in aesthetic situations. In the situation of recognition, aesthetics is merely a stereotype with attached meaning given by the public while users encounter daily objects in everyday experience. On the other hand, the situation of perception is the experience unique to every perceiver while interpreting an object's aesthetic quality. Although perception is still based on the user's existing experience, it contains something new and personal which is not reducible to convention or sign meaning. Objects are meaningful and valued not only because of their social meanings; rather, the perception of the user is essential to meaning creation (Csikszentmihalyi, et al., 1981, 176-183).

Concerning how the flow of psychic energy is channelled, Csikszentmihalyi, et al. use the term "attention" to describe how users direct their consciousness to objects. The situation of attention is twofold. First, a user selects the interaction with and concentrates on an object from its surroundings and focuses concentration on certain engagement while paying attention. Second, objects, such as an alarm clock or a pet (in an extended sense of "object"), also possess the capacity to demand attention and invite users to engage. Csikszentmihalyi, et al. call the optimal experience of engaging with objects in the condition of attention "flow." This is a state where the engagement itself is an enjoyable experience. People do it just for the pleasure of doing it, such as playing a musical instrument, racing cars, painting, and reading poetry. They also point out that attention and the state of flow must be focal so that people can ease their psychic energy from routine everyday engagement to those that need to be cultivated and engaged deeply (Csikszentmihalyi, et al., 1981, 184-187). This perspective is similar to Borgmann's concept that domestic engagements need to be selective, and festive engagements need to be focal. It is the energy that we save from familiar interactions with domestic objects that enables us to attend to objects that invite "flow".

In the third mode of person-object transaction, users are motivated by an inherent sense of "goal". Objects not only reflect the way users live their lives but also project their future images of whom they want to become. They possess objects such as cherished photos or a garden of flowers that reveal intentions and goals they are concerned with. This mode of psychic activity represents the outcomes of the transactions, which are the purpose of user-object cultivation. In learning how to cultivate the user-object relationship, a user discloses and develops the self. For example, a user becomes a musician through engaging with a musical instrument. The user establishes a value system that embodies their goals through engaging the musical instrument, which in turn also helps to shape whom they may become (Csikszentmihalyi, et al., 1981, 188-189).

Use, experience, and memory

Observing modes of meaning creating processes from a design standpoint, Victor Margolin, and Hans Kemp, et al. focus on the empirical aspect of how products are involved in the meaning

creating processes in user engagement rather than on the mental relationship between the self and things. Similar to the approach of Csikszentmihalyi, et al., Margolin (1994) adopts Dewey's concept of experience to refer to the outcome of interaction between people and the environment. According to Dewey, experience is not an attached quality of things or a tangible substance. Instead, it results from the interaction between things and users therefore requiring attentive care to generate worthwhile meanings. Margolin distinguishes two dimensions of human interactions with products: the operative and the reflective. The former is the use of a product and the latter is how users give and perceive the meaning of a product. The reflective dimension of interaction has no limit in terms of how the user thinks about a product, although meaning generally reflects the user's sensibility and past experience. These two dimensions work together in human interactions with products (Margolin, 1994, 54-58).

As members of the company Philips, Hans Kemp and Mark Hartevelt approach the question of how users interact with products with a clear goal of improving users' pleasurable using experience. Based on their research, they distinguish seven principles that a product contributes to pleasure in user engagement: 1. features, performance, and reliability; 2. usability; 3. aesthetics; 4. enables a good performance; 5. elicits good memories; 6. plays a role in the user's social context; and 7, elicits sense of control over the product (85-86). They also divide four phases of user-product relationship as different steps in the continuum of product use: first impressions, discovery, experience, and memory (Kemp, et al., 1994, 84). Their research of how products create the sense of pleasure can be regarded as how objects make sense to a user in the first dimension of meaning situations in user engagement discussed before. We can notice that the development of user-product relationships can occur not only during use, as the phases of "discovery" and "experience" indicate, but also at the moment of "impressions" before and the "memory" after the utilizing engagement. Also, the experience of pleasure constitutes factors drawn not only from objects' inherent qualities, such as "usability," but also from their contexts of use, as the attributes of "social context" and "good memory" indicate. Although this research provides suggestions of design principles related to pleasure in product use. I attempt to pursue more universal guidelines that function as not only design principles but also as referential bases toward meaningful design. This attempt is represented by the model of roles in the next chapter.

Meaning, roles, and design interventions

In contributing to different dimensions of meaning situations, design interventions can be organized in three major categories: 1, interventions in products; 2, interventions in systems, regulations, and product environments; and 3, interventions in user behaviours and lifestyles.

To choose an appropriate, effective, and efficient means of intervention, designers need to understand how meaning situations are formed in each design project in addition to how design problems can be solved. A previous example of coffee cups on the meeting table can be used here. If it is the feeling of warmth while grabbing the cup that is most appreciated, to replace the

Three modes of design interventions:

1. Interventions in products
2. Interventions in systems, regulations, and product environments
3. Interventions in user behaviours and lifestyles

Three dimensions of meaning situations:

1. In engaging with an object, a user experiences usability, pleasure, comfort, memory, and other sensory, intellectual, and emotional engagements
2. Through engaging with an object, a user's abilities and goals may be both extended and limited
3. By engaging with an object, a user develops a different relationship with people, with other objects, and with the environment

[Figure 2-3] Three modes of design interventions and three dimensions of meaning situations

hot coffee with a cold one can radically change the meaning of “a cup of coffee on the meeting table” to the user. In this sense, assuming there are no other factors participating in this meaning situation, the role of “something warm to be grabbed” of a cup of coffee can be replaced with other objects that constitute the same quality or play the same role, such as a palm heater. This example shows how design can participate in a meaning situation through intervening in the product.

Designers can also create different meaning situations through design interventions in systems, such as a public transit system, ISO standards, policies, or safety regulations. For instance, the policy of free admission to the public once a week or to school students of some museums in many cities alters the meaning of “art belongs to the privileged ones” to “art belongs to the public”. Convenient subways and other public transit systems in a city can change the meaning of “owning a car for work” to “owning a car for leisure” to urban residents. And the design of wheelchair accessibility of buildings and the street environment changes the meaning of public environment from the perspective of wheelchair users.

On the level of modifying user behaviours, designers often have to approach it indirectly by means of the other two forms of intervention. Findeli (1994, 58) calls the approach of modifying human behaviours in order to “dissolve” design problems the “moral solution”. It is opposed to the “technological solution” that concerns how to “solve” design problems by applying technological approaches. One example he gives is the problem of garbage collection:

A small city in the United States is having trouble with garbage collection. Rather than enlarging its dumping grounds or constructing a treatment facility (technological solutions), the city chose to require that its citizens dispose of their household garbage in only standard garbage bags sold at \$3 a piece (twenty times more than conventional

bags of the same size) colour-coded by the municipal authorities. The conventional bags will no longer be accepted by the garbage collectors (the moral, i.e., political solution). The amount of domestic waste diminished by half during the first week of operations (modification of behaviour) (Findeli, 1994, 59).

The moral solution provides an alternative approach of dealing with a problem. This approach not only suggests a solution, but also transforms the problem itself. In Findeli's words, the problem is "dissolved" by the moral approach.

Nevertheless, we have seen many design interventions having more impacts and consequences than what was expected. For instance, television is not designed to decrease conversations among family members, the microwave oven is not designed to alter the pattern of family dining, and internet is not designed to enlarge the difference of accessibility to information between the poor and the rich. However, these changes do occur and some of them may be regarded as trends of so-called technological evolution that is out of the designer's control. Among these unintended changes, how many of them are "accidents" resulting from inconsiderate design interventions? We have to admit that there are certain limits of design interventions and their corresponding responsibilities; but we also need powerful tools for observing and predicting consequences that are often omitted by conventional design methods. One step to equip the tools is to construct a conceptual model that leads to new design thinking and thoughtful interventions; a suggested model is discussed in the next chapter.

The three forms of interventions listed here are intertwined solutions, changing any of which will result in a chain of causal effects to another. In the example of garbage collection, the change of policy (\$3 a bag) results in the change of behaviour, and the garbage (in a pricey standard bag) becomes an object requesting an immediate payment. Although another solution, constructing a facility of garbage treatment, requires money contribution also, the payment is withdrawn from a tax system in which users receive a less direct impact. Strictly speaking, modifying human behaviour in a direct sense is not a socially granted task for designers. Rather, it belongs to educators, religious instructors, and other forms of teachers in a broad sense. Another example given by Findeli (1994, 159) indicates the absence of object designers in some possible solutions:

Two alternatives are conceivable for the prevention of AIDS: to use condoms (the technological solution) or to modify one's sexual behaviour (the moral solution). Only in the first case is a designer requested.

Designers intervene in human behaviours and moral choices in indirect approaches through artifacts. These approaches are implied by the commonly adopted description of the designer's major task as "the conception and planning of the artificial" (Buchanan, 1996, 82). We may soon

have a product category called “ethical design” which includes environmentally-friendly design, neighbour-friendly design, socially-friendly design, race-and-culture-friendly design, and user-friendly design. All these somewhat novel blueprints must be realized at the level of “artifacts” from the perspective of designer’s rights and responsibilities. To be more accurate, the designer’s task is to intervene in the “roles” of artifacts in order to achieve technological and moral solutions. Designers do not “design” human behaviours or culture directly. Likewise, designers do not “give” meaning to products in a direct sense, either. Instead, meaning is created from reciprocal interactions in user-object engagement. The role designers play is to create opportunities for those changes in meaning and behaviour to happen by modifying the roles of objects. Given the example of garbage collection, the role of garbage changed into a costly object instead of a mere dump after the change of policy. In this case, the garbage itself had not changed, but its role had. Household residents who produce the garbage started to think differently. The garbage gained a new meaning - something you need to pay to get rid of. Roles should be regarded as fundamental units for designers to observe the outcomes of design interventions and the evolution of objects in history in terms of user-object relationship.

2.4. Media, Reality, and the Mediating Role of Objects

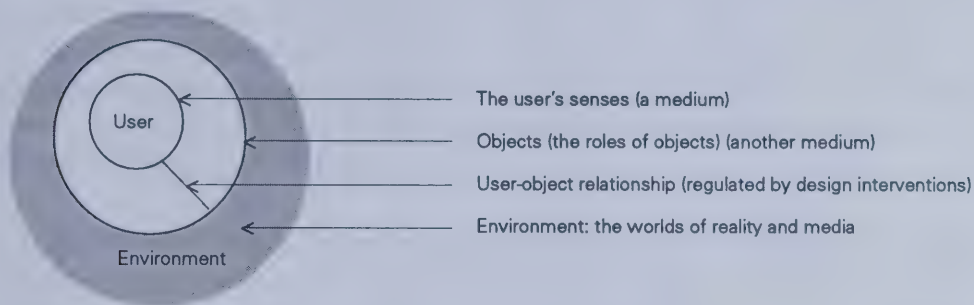
2.4.1. Introduction

Franz Kafka once illustrated a story about messengers. In the story, people have two choices, either to become an emperor or the messenger of an emperor. They, like children, all choose to be the messengers of the emperor. Thus the world is full of messengers who deliver meaningless messages because the emperor is not there.

This is somewhat similar to McLuhan’s conception of medium being the message. But we should give these two similar messages a deeper thought rather than simply accepting them as modern fables or myths. The idea of media relates to the subject of this thesis in four aspects:

- Objects are mediators – mediators to actions, senses, thoughts, and meaning – and can be interpreted as a form of media in a broad sense.
- The media world is also a world, which is based on experience, in addition to the world of reality.
- User-object relationships include the relationship between two media: senses and objects.
- The task of designer in the scope of user-object engagement is to deal with objects, objects’ roles, the relations between users and objects, and the meaning and functions of objects.

The scheme of the above formula goes as follows (Figure 2-1):



[Figure 2-4] The relations of media, objects, users, and the environment in the user context

2.4.2. The Worlds of Media and Reality

Often, designers intend to make objects become messengers – messengers delivering design concepts, product semantics, intentionality of designers, cultural meaning, symbols of social status, myth, and messages of pleasure, modern, postmodern – but in many cases, the object itself becomes the message. This notion echoes the theme emphasized about the concept that objects are not only bearers of meaning but also contributors to meaning situations.

Csikszentmihalyi, et al. (1981, 43) comment:

One of the most important, but unfortunately most neglected aspects of the meaning of things is precisely the ability of an object to convey meaning through its own inherent qualities. Yet most accounts of how things signify tend to ignore the active contribution of the thing itself to the meaning process.

The fact of ignorance to the contributing role of object is not surprising because the tradition of studying meaning has focused on language and on objects' communicative qualities. Objects that function as media can also contribute to the meaning process and "speak" the message of information of their own in addition to delivering messages of others. The message delivered by messengers in Kafka's story is no longer meaningless if the messengers start to speak their own messages. Now the message is transformed to the message of the messengers (in the media world) instead of being the information of the world of the emperor (in the world of reality). Although the message delivered by the medium "presents itself as message," argues Baudrillard (1990, 89), the real message of the medium "is the profound structural change brought about in human relations in terms of scale, models, and habits." In other words, mediating artifacts such as television, trains, and telephones, deliver messages beyond the "content" they deliver, which is the information, voice, coal, or passengers. But, the mediating artifacts themselves also play influential roles and actively participate in the world of reality. The world of media is itself a variant and transformed world. Don Ihde expresses that it is "either merely an

imitation of or reproduction of the ordinary perceptual world" (59). According to him, the media world is a world in which we perceive images and voice through our senses (such as eyes and ears) and the machine (such as a television). The whole experience of watching television integrates the content, media, and place where we watch it (in reality). The effect of media is "real" to us and the existence of the television, as a machine of media, is part of the perceptual experience in reality (Ihde, 1983, 59).

We live in the world we experience (through senses), including the worlds of reality and media, and express ourselves through the same media of experiencing that are our bodies and senses. Media extend and sometimes limit the "input" and "output" probability of our natural capacity. The mediated experience is a non-neutral experience, including both reducing and amplificatory perceptions. Through telephone, we can extend our senses of listening and speaking in terms of distance, but we are also reduced by the presence of ourselves to mere voice (Ihde, 1983, 49-52). Both media, the media of our natural bodies and senses and the media of technology, compose the world we experience.

2.4.3. Objects as a Mode of Media

Now, we should bring in the concept of objects being a mode of media in a broad sense. For instance, Levy lists eight dimensions of how technology can extend human ability as discussed previously. Barthes (1988, 181) points out that "the object is a kind of mediator between action and man." Peter-Paul Verbeek and Petran Kockelkoren (1998, 39) explain that objects play a mediating role in terms of helping "shape our relationship with the world"; this idea is based on Ihde's concept of "embodiment" of objects and Martin Heidegger's theory of "readiness-to-hand".

The concept of "embodiment", a term following Merleau-Ponty, is similar to Borgmann's notion of "the depth of design," of which objects help reveal the world. "They do not represent the world, as technological devices do," Borgmann (1995, 20) writes, "they allow the world to be present in its own right." Objects with capacity of embodiment permit users to engage the world "through" them instead of "by" them. For instance, we wear glasses to see the world through them rather than looking at them. Although the mediator is always present, such is that we cannot neglect the device of telephone when we use it to talk, it is integrated in our real-life experience as Ihde (1983, 59) remarks. In his article "The Technological Embodiment of Media", Ihde uses Heidegger's famous notion of "readiness-to-hand" to explain the "withdrawn" or "transparent" role of objects. Heidegger distinguishes the differences between "present-at-hand" and "readiness-to-hand" as two modes of user-object relationship. In a harmonious relationship, a hammer – his example of objects – should be ready-to-hand and withdraw the concentrations of the user from the tool (the hammer) to the task (hammering). The hammer then appears to be "transparent" as similar to the instance of glasses. However, if the tool

needs extra care or consciousness from the user, such as a hammer having a slippery handle, it becomes “present-at-hand” and draws the user’s attention from the task to the tool. Ihde calls the perfect situation of ready-to-hand “the idealization of a technology” (Ihde, 1983, 51). This attitude is also shown in the field research of hiking backpack users conducted for this thesis. For example, one participant said: “What the backpack manufacturers are striving for is that people don’t notice or feel [the backpack] on your backs.”

Nonetheless, the transparency of the mediating objects is not always desirable. Some critics have warned about the phenomenon caused by confusion between the media and reality. Objects do not only play the role of tools – they also play the role as signs and as active meaning contributors. For instance, wearing glasses can be part of one’s fashion statement; the major purpose of wearing them is to be looked at but not to see through them. Designers need to design engaging objects selectively and focally, and pursue the state of appropriateness between perception and recognition in user engagement. Objects which do not invite participation leave no trace of memorable meanings to the user but objects that request too much attention and caring become burdens and cause semiotic pollution. It is the designer’s responsibility to design appropriate user-object relationships so that the world perceived through media and mediators can maintain a harmonious relationship with the users. As Bonsiepe (1995, 36) observes: “The objective of design activity is neither the production of knowledge nor the production of know-how, but the articulation of the interface between artifact and user.”

We can visualize this concept of objects’ mediating role by imagining a model of a user in the centre surrounded by two spheres of media (Figure 2-4). The first sphere is a user’s natural media, their senses and body, and the second sphere is the artificial media, objects and media. There are three possible approaches to adjust the distance from a point in the first sphere to another point in the second sphere: to adjust the first sphere, to adjust the second sphere, and to adjust both. If we consider that the distance between two spheres represents the user-object relationship, then the first approach represents the moral solution and the second the technological solution. In most cases, designers intervene in the first sphere through modification of the second, or through both of them. There are always new and unintentional meanings and functions generated from the interactions between a user and the surrounding environment, which includes the worlds of media and reality. With new meanings being created, objects thus obtain the characteristics of subjectivity, and deliver their own messages. Since the media world is part of a user’s “real” experience, the significance of media is no less than reality. Or we can say that the media world is as real as reality in a phenomenological sense. Ihde remarks: “[A]t the level of human self-interpretation the experience of media becomes pervasive and familiar and begins to inform our ways of understanding ourselves” (61). Our engagement with media has resulted in a phenomenon “that ‘I’ will become ‘like’ my experienced ‘world’” (Ihde, 1983, 60).

Media have a capacity to shape the self, actively participate in our lives, and mediate our goals. The analogy between the media and the objects’ mediating role may provoke some new

thoughts and insights concerning the issue of media and reality. In the end, here is a quote from a reflective voice from Borgmann (1995, 30):

To put the drift of information technology briefly and starkly, information at the turn of the century tends to enfeeble persons and attenuate things. Luddism, of course, is not the answer. Information cannot and should not be wished away. But it has to be counterbalanced. We must regain the actuality of people and the nearness of things, and turn from information as reality to information and reality.

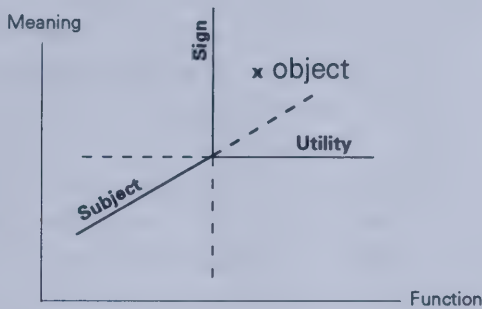
It is the designer's social responsibility to contribute to the task of counterbalancing the outcomes of information technology. The work of applying technology to serve human beings calls for judgements on appropriateness, since there are constituents in the human experience that should not and can not genuinely be replaced.

The Roles and Ecology of Objects

3.1. The Roles, Meanings, and Functions of Objects - A Model

3.1.1. Introduction

Many ideas and models have been added to the studies of human interaction with artifacts, such as models of scripts, gesture, cultivation, language, intentionality, embodiment, and signs. Some of them focus on action and experience, others emphasize the inherent qualities of artifacts, and some concern the investment of psychic energy during interactions. The model proposed here concentrates on the unit of design interventions and modifications: the *role* (Figure 3-1). Distinguished here are three kinds of roles – *sign*, *utility*, and *subject* – that characterize an object's performance in user engagement. These three roles form a three dimensional model within a referential system constituting coordinates of meaning and function. The referential system is the system conceived by the user; therefore, roles of sign, utility, and subject are not fixed. They fluctuate with users' minds, engaging context, social values, the performances of objects, and many other factors. In the model, the role of sign does not directly relate to meaning and neither does utility to function. Rather, the arrangement of the model implies that to view an object from the perspective of function, it reveals its utilitarian characteristics more than other aspects; likewise, to view it from the meaning perspective, it reveals its sign qualities more than other qualities. The third role, subject, forms the third dimension of the model of roles. It includes the characteristics of an object that are often neglected when an object is regarded as a utility or sign. When an object appears to be a tool, we concentrate on the "action" that is achieved through it, not on the tool. When an object appears to be a sign, it achieves its significance by the meaning it bears or transmits, not the meaning of itself. When an object appears to be a subject, it is not a mediator of something else – action or meaning – it is the purpose of engagement itself. Or, it delivers messages more than the action and meaning it mediates; its marginal role performs characters beyond what it is assigned. Or, it performs as an active attribute in a meaning process, and is influential in a functional sense. The role of subject does not have a corresponding reference as do the other two roles because it constitutes complex performances of an object that are inseparable and difficult to be classified. Objects possess all these three roles and perform them as a whole. Although often, one role has more important effects on a user than other roles, it becomes an object's dominating quality and major impression to a user.



[Figure 3-1] A proposed model for studying an object's roles, meaning, and functions in user engagement. The roles of an object are represented by three dimensions: sign, utility, and subject. The model of roles is placed within a referential system composed of meaning and function coordinates.

3.1.2. Models of Scripts and Gestures

Here are two alternative models that designers use to understand objects and interpret the phenomena of design interventions:

"Scripts" is a concept proposed by Eternally Yours, an organization founded by a group of Dutch designers in 1995. It refers to the prescriptions of how to use a product in relation to the user's lifestyle. A product is conceived as an actor in a story that performs certain iconic and symbolic character. For instance, in an old advertisement, a Nikon camera is found still workable after ten years lying on the bottom of the sea. The message of the advertisement is to deliver the camera's symbolic meaning of durability and reliability (Verbeek, et al., 1998, 30). Although the concept of characters is similar to that of roles in the model presented in this study, the actor in the model of scripts plays only the role of sign. The model of scripts privileges signs, and thus other dimensions of objects are neglected.

Richardson (1994) proposes another model: gestures. He replaces the traditional concept of "text" with "gesture" to describe the interaction between the user and object, or "pro/ject" in his term. According to him, this is a better model than text for three major reasons:

Gestures are seen all at once, lasting only a brief time, and are not so much based on a sequential communication of information. Thinking of a pro/ject this way releases the designer from having to create a story with a sequence that has to be somewhat enforced. Instead, the pro/ject is treated as a single signifier rather than as a series of them. This does not prevent it from being polysemic, that is from having multiple signifieds and creating any number of signs. ... Secondly, and perhaps obviously, products and gestures are both physical, three-dimensional manifestations of concepts

... and are visual representations of the concepts to a much higher degree than texts are. ... Thirdly, gestures are more indefinite in their meanings than texts: there is no dictionary of gestures. ... This provides a framework from which to create a more in-depth understanding of the particular gesture being performed at that instant, and this is built upon by drawing inferences from the surrounding context (Richardson, 1994, 116).

While this concept of gesture is suitable to interpret the meanings of products, it is also too elusive for designers to grasp. The room left for interpretation of gesture is huge; and the snapshot-like emergence of gestures is counter to the user's experience of time-space continuum.

3.1.3. Intentionality

The sign is "a lie," Umberto Eco (1976) observes. It is something standing for some other things. The utility is a slave; it embodies intentionality to serve human use. The subject is a self; it can be functional without being a tool and be meaningful without being a sign bearer. It is a role that is sometimes quite distant from an object's implemented intentionality. Contrarily, objects' roles of utility and sign are closely connected to their intentionalities, or their purposes for being created. The concept that objects have implemented purposes is adopted by many disciplines. Phenomenologists use intentionality as the key notion to explain experience. They consider human experiences to be guided and directed by certain intentions. The way we experience our world is selective and focal; and because this experience is also reflexive, we also know ourselves from this interactive experience. Ihde's notion of embodiment, which is introduced in the last chapter, is based on the phenomenological concept of intentionality. He considers objects to have capacity to "embody" the user's experienced activity, which is directed and intentional (Ihde, 1983, 52-55).

Cultural materialists develop the discipline based on a fundamental attitude of determinism that "every product of human activity has an organizing principle and unifying intention" (Prown, 1982, 16). In Prown's opinion, utilitarian devices and art objects are overlapping categories. From the perspective of intention that objects reveal, art objects are created by "the needs of belief" and devices are the outcome of "physical necessity" (16). However, if devices show more cultural significance on their styles of aesthetics than functional significance, they are perceived as art objects in cultural analysis. According to him, the intention of a device is "outside" of the object, but an art object is "an intention in itself" (15). This distinction is based on the embedded purpose of the object: we use and apply devices externally but perceive an art object to refer to ourselves (Prown, 1982, 15).

Another cultural materialist, Fleming, relies on functional analysis to reveal the meaning and essence of artifacts. In his conception, the "art" aspect of an object, such as style and decorations, also possesses function that is a vehicle of delight. His opinion is similar to the model proposed in this chapter, which considers that all three roles of objects have both functional and

meaningful aspects. He also points out that the function of artifacts involves both intended and unintended uses and roles. The tool, or the object's role of utilitarian function, is the simplest form of intended use. Additionally, an artifact also "functions as a vehicle of communication conveying status, ideas, values, feelings, and meaning [and in some cases] becomes an agent of major change within its culture" (Fleming, 1974, 158). His notion of objects' "unintended role," which includes the expected and unexpected effects on cultural changes, is integrated in the role of subject in the model proposed here.

Kurt Koffka calls the concept of objects' implemented intentionality the "demand character" of things. Based on Gestalt Psychology, he believes that objects "tell us what to do with them," such as to a primitive man, "water says, 'drink me'; thunder says, 'fear me'; and woman says 'love me'" (Koffka, 1935, 7). The demand character is not fixed on the physical attributes of an object; instead, it is phenomenal and behavioural, and is derived from experience. On the other hand, the concept of "affordance," a term coined by Gibson, considers that the invited quality of an object is attached to the substance but not to the phenomenon. This notion is similar to Jacob von Uexküll's idea of "counter-ability" of things. For instance, a chair is there waiting to be seated, a stair for climbing, and a car for riding. Uexküll observes: "In the counter-ability lies the meaning of the object for our existence. ... Everything surrounding us here in town has only its sense and meaning by its relationship to us humans" (Krampen, 1989, 127). Here we can notice that our attitudes toward man-made objects are inevitably egocentric; we read them from the view of their purposes of being created or of sign but not too far beyond.

Objects that perform as utilities or tools are servants. In fact, not long ago, natural objects, in contrast to artifacts, were also conceived as servants existing for human use. We consider some plants as "weeds" and some animals as "pests" such as locusts, because they hinder certain human activities. Certainly, many of us no longer keep this clear-cut judgement toward natural organisms and apply scales in addition to self-beneficial ones. But the concept of total control over possessions, including artificial or natural ones, is still validly accepted. In the open statement of his article, "The Land Ethic," Aldo Leopold (1966, 217) writes:

When god-like Odysseus returned from the wars of Troy, he hanged all on one rope a dozen slave-girls of his household whom he suspected of misbehavior during his absence.

This hanging involved no question of propriety. The girls were property. The disposal of property was then, as now, a matter of expediency, not of right or wrong.

Objects treated as properties are similar to slaves in Odysseus's Greece – they are expected to perform what they are intended to do and become (almost) "transparent" to their work at their best, such as those "transparent" tools from a "ready-to-hand" perspective. They are objects

with no personalities. Nevertheless, objects do more than what we intend them to do and some are cared as more than mere properties.

3.1.4. An Object's Role of Subject

Viewing an object from its role of subject, we read it as if it were a self-contained entity. The role of subject embodies the characteristics of an object besides sign and utility. We can observe the subjective role of an object from three aspects: 1. an object that performs unexpected functions and meaning; 2. an object that is self-referential, or as an intention in itself; and 3. an object that is an active contributor which has an influential capacity such as altering the pattern of life. We use a pencil to write but we can also use it to scratch our head, stir a cup of coffee, throw something, make a gift, or chew on it. The pencil means and functions differently when it plays these unintended roles compared to its original use as a tool for writing. There are also objects meant to be perceived and engaged on their own rights. An art object whose purpose of being created is not to represent an idea or sign value but purely for its own significance falls into this category. And a pillow, besides its function as a tool for sleep, can provide comfort to a user who perceives its softness and tactile quality. The process of engagement of these two examples is an aim itself, instead of mediating another meaning or action, although they can also be mediating objects that mediate meaning (the art creator's intention) and action (sleep). In a sense, the object that performs a subjective role is a mediator that delivers its own message. The third aspect of the subjective role concerns objects as active function and meaning contributors. For instance, in the field research, a hiking-backpack user said that her backpack motivates her to hike, plan trips, and make the best use of her investment on hiking equipment. The backpack thus becomes a motivation, which is an unintended function. However, the influential meaning or function beyond an object's role as sign and tool is sometimes intentional. A notorious example is the unusually low bridges built in New York over a road to a beach. The result of the low bridges is that only cars can pass below them, buses and other higher vehicles cannot. Therefore, only the ones who can afford a car can reach that beach (Franklin, 1990). This is an intentional design to separate the poor from the rich, even though this intention is carried out in a subtle way through artifacts. Some of these functions and meanings of an object's subjective role are marginal – such as a backpack as a motivation for hiking; some are quite central – such as an art object that is meant to be perceived. The role of subject is a character of objects that cannot be simplified to be utility or sign. Objects can make sense and function in a pattern similar to living creatures, such as a pet or a person. Wasn't it McLuhan who once called a car a man's "mechanical bride"? Not only cars, but photos, furniture, and many other objects may also elicit a certain sense of attachment in their users. These objects possess the quality of subject within or beyond their creators' intentions.

"Thousands of examples attest to the indirect impact of objects on the changing human existence" (Csikszentmihalyi, et al., 1981, 45). Their message is clear. To start recognizing the object's

role of subject is a beginning for designers to search for meanings of objects and their related immaterial, social, and cultural responsibilities.

3.2. Aesthetics and the Roles of Objects

Probably very few people may agree that aesthetic experience is derived from an object's utilitarian role. However, this does not imply that aesthetics cannot be an object's function, which is different from the role of utility. The conception of aesthetics constitutes function, so that art objects can also be perceived as functional objects. A piece of sculpture can bring sensory pleasure to a viewer. In this case, the art piece functions as an enjoyment provider. From the viewpoint of aesthetics' function on community, Theodor Adorno (1974, 13) argues that the aesthetic experience allows for the "defence of the non-identical which in reality suppresses the constraint of identity." Aesthetics serves as a common experience and feeling shared by a certain "emotional community," that brings the communal identity and social situations and behaviour together (Maffesoli, 1988, 146). The aesthetic dimension is perceived across rigid social structures, and becomes a common stock of emotion shared by a community in a non-conventional sense. Bringing this concept to design, the "target group" which designers have always tried to identify in traditional design methods, may embody new meanings that shift from seeking cultural groups, which are usually identified by ages, races, occupations, and genders, to seeking aesthetic groups.

From the viewpoint of aesthetics' function on individuals, the experience and ability to perceive art help individuals establish a sense of order and meaning. As an important educator in the history of modern design discipline, László Moholy-Nagy (1947, 28) states that the purpose of art is to create a "unified manifestation [...], a balance of the social, intellectual, and emotional experience; a synthesis of attitudes and opinions, fears and hopes." The ability to perceive art helps us unite the social experience and the artificial world with our biological instincts so that we can find a sense of harmony within the inner world of the self and the outer world of social life (Maslow, 1966).

Art experience is both self-referential and socially located. The "meaning" of a piece of art can derive from both its substantial quality, such as form, colour, and sound that stimulate a perceiver's sensory and emotional perceptions, and from its social and cultural meaning. The former is an art object's actively contributing role, or its role as subject, and the latter is its social meaning, or its role as sign. These two dimensions of perceptions of art are closely related. According to Stuart Walker (1995, 19), the creation of aesthetic experience contains two parts: the first part is "sensory response," which is "immediate and non-referential sensory enjoyment" and the second part is "contemplative experience," which is "intellectual reasoning [looking] for meaning and judgement." An object, which exists as a sensory form in itself, has a

capacity to evoke memories and historic relations. A perceiver may experience a recall of senses from engaging with an object (Seremetakis, 1994). For example, an old book can provoke unexpected or missing memories of sense, such as the smell of a childhood house or the image of a city. The smell, texture, and colour of the book, which bring sensory enjoyment while being engaged, store these sensory memories. The following example provided by Walker is rather extreme. He writes:

A few years ago, two freeze-dried aborted human fetuses were made into earrings and exhibited at an art gallery in London. If it were possible to separate the sensory response from the contemplative experience, we might, conceivably, have said that in terms of shape, color, texture, etc., the earrings were beautiful. But how ever beautiful these sensory aspects, the contemplative experience might tell us that the associative content of the earrings ... is unacceptable to our personal views; which to a large extent also tend to reflect societal norms (Walker, 1995, 20).

It is not difficult to realize that in the perceptual experience, the content of an art object, which includes its subject matter, material, etc., is inseparable from its context, which includes the associate information besides the object itself. Csikszentmihalyi argues that the effect of cultural context is so decisive that our sense of visual values is constructed on social consensus rather than perceptual stimulation. In their opinion, we develop our aesthetic values under cultural influences and personal experience. Since public taste and value differ from culture to culture, aesthetic values are more relative than absolute (Csikszentmihalyi, 1991, 33). The same piece of art can provoke different perceptual responses and different cultural groups develop their particular tastes and aesthetics, such as elite and popular art.

Because of the holistic essence of perceptual experience, when an object is *perceived*, which is different from *recognized*, it is not reducible as an aggregate of parts, which are its form, surface texture, colour, and materials. An orange is not perceived as "the juicy plus the orange" (Barthes, 1988, 186) in our aesthetic experience, but only in the sense of semantics while it "is always there as a natural object to sustain one of its qualities which becomes its sign" (Barthes, 1988, 186). Barthes (1985, 149) expresses in an article entitled, "Is Painting a Language?" that "semi-ology, as a science of signs, has not managed to make inroads into arts ...". The reason is probably not what he claims in the article: "it reinforces by default the old humanist superstition that artistic creation cannot be 'reduced' to a system: system, as we know, is the declared enemy of man and of art" (149). Rather, it is the holistic nature of human perception that makes our experiences of art not reducible to the narrowed conception of communicative sign or language.

As a combination of tool and art, Philippe Starck's "Juicy Salif" lemon squeezer, produced in 1990 by Alessi, is a good example to explain the relation of an object's roles and aesthetics. Its utilitarian role is to squeeze lemon. Its role of sign is linked to its famous designer and the taste

of elite. And its subjective role is derived from its sensory beauty that brings imagination and delight. The experience of pleasure in engaging it is a union of above roles which are interconnected and mutually influential.

A last remark on the issue of aesthetics and roles discussed here pertains to design practice. Following his argument that contemplative experience is inseparable from sensory response in aesthetic perception, Walker points out a promising direction of design practice from the standpoint of product aesthetics. Since our aesthetic sense is continually evolving within cultural contexts, designers have opportunities to integrate new sensibilities to products that embody desirable values, such as environmental sustainability (Walker, 1995, 27). New recycled materials can be perceived as a form of new aesthetics, and "classic design" can extend product life span. A similar concept of making products to afford new aesthetics is also expressed in Victor Papanek's book, *The Green Imperative*, in which there is a chapter entitled, "The New Aesthetic: Making the Future Work". A product can possess aesthetic values derived mainly from its meaning and depth in history rather than from its direct physical attractions. Our expectations of aesthetics have evolved with new products and redefined by new values; as a result, new designs can not only reflect new aesthetics and values, but also influence them.

3.3. Roles in Ecology and Evolution of Objects

3.3.1. Reading Objects with an Ecological Model

Papanek (1983, 186), who wrote extensively on the subject of design and ecology, expressed in his book, *Design for Human Scale*: "Design is to technology what ecology is to biology." The role of the designer towards the world of artifacts is similar to that of the ecologist towards biological creatures in the respect of understanding artifacts and species. An important question we should ask to interpret this analogy is: "What are the characteristics of the role of the ecologist that distinguish it from that of other systems of thought?" There are two fundamental qualities that describe the ecologist's specialties. First, they think from a very high angle considering complex and complicated interactions among factors and phenomena in the environment that are influential to organisms. Second, they focus on a very narrow scope of levels of species, or even individual phenomena. In *Steps to an Ecology of Mind*, Bateson, who is famous for his thinking of mind with ecological models, inquires into the question of *pattern* and *substance*. "Do you ask what it's made of - earth, fire, water, etc.?" he asks. "Or do you ask, 'what is its pattern?'" (449). He uses Alfred Korzybski's statement that "the map is not the territory" to explain the differences between a theoretical model and what's really happening in ecology and in evolutionary processes (Bateson, 1972, 449). The science of technology, as similar to other sciences, is concerned with searching for universal patterns that can satisfactorily explain the world we observe. The map serves as a guiding tool which can only guide us roughly but cannot provide

specific information such as the colour of the car at the next corner. However, ecology is also a science that deals with animated creatures whose life cycles are not completely predictable. One of the major differences between physical sciences and biological sciences, according to Ernst Mayr (1976, 368), lies in "the uniqueness of biological entities and phenomena...". For physicists and chemists, the rule of the physical world is universal, such as rains fall down and oil floats on water. For ecologists, the organic world is composed with uniqueness: unique life cycle, unique individual, unique behaviour, unique population, etc. This is particularly evident in the studies on biological evolution in which scientists can only predict the probability of characteristics such as the percentage of two genders or eye colours in the next generation of fruit flies, but cannot predict what will happen next exactly (Mayr, 1976). Therefore, the work of an ecologist is not done even after all principles of ecology have been found. The unlimited and dynamical complexity of biological phenomena contain sets of causes that can never be identified and analysed exhaustively. The same premise and conditions apply to designers as well. The context in which a user will use the product after the design process is unpredictable, or only predictable statistically. This inevitable limitation has to do with defining the designer's responsibilities which is a major theme emphasized throughout this thesis. The designer's attitude towards responsibilities should be similar to that of ecologists when they face tasks such as environmental management. Both specialists can only carry out decisions based on known factors, but treat those unknown with ethical attitudes. The responsibility of designers is nonetheless limited, but we can only claim our limitations with adequate knowledge, judgements, and work ethics. As Moholy-Nagy (1947, 72) remarks: "Designing is not a profession, it is an attitude."

There are benefits and certain limits to the analogy between objects and living creatures, and between the system of objects and the natural ecosystem. For the beneficial part, the natural model provides a reflection of complex systems for the no less simple systems of human civilization. We can hardly find any other model that functions as a mirror that continually reflects ourselves, enlightens wisdom, responds to our behaviours, and reminds us what we have done in human histories. A controlled laboratory environment and a virtual model created with computer programs can only simulate a limited aspect of the real world, leaving out factors that are of minor or unknown importance in an experiment. For example, economists can simulate an economic model of a given country in the cybernetic environment of a computer and conveniently control chosen variables. Simplified models such as above have their values and functions, but principles found in ecosystems, such as the principle of energy flows, may provide new insights that are not observable in simplified models. The principles we learn from complex and diverse ecosystems can be valuable to understand the similar complex world of artifacts. Another reason, which is obvious, is that we never really live outside of natural systems. We always live within an environment that is governed by natural rules and supported by natural resources. We need water, air, and sun as other species do; *Homo sapiens* is still a species of animal in a biological sense. Development of human civilization has always relied on nature, and thus never escapes being part of the ecosystem. The ecosystem of artifacts is a subsystem in a larger

ecosystem, in which objects evolve as other occupants do in their ecological niches. Nonetheless, the fact that both objects and species can evolve does not imply that they follow the same route toward evolution. Designers may obtain new insights from rethinking the evolution of objects by using the principles of other evolutionary systems.

It is equally important to understand the differences between systems of artifacts and the ecological system. One of the most important differences is the teleological nature of man-made environments as opposed to nature's non-teleological essence. This difference reflects on different levels of systems, and is particularly evident in evolution. A pessimistic point of view comes from Bateson. He believes that it is a mistake that humans began to think purposively since the time when Adam tried to reach the fruit of intelligence in the Garden. He argues: "Purposive consciousness pulls out, from the total mind, sequences which do not have the loop structure which is characteristic of the whole systemic structure" (Bateson, 1972, 434). There is the systemic nature of the ecological, biological and cultural systems, he expresses, but human beings are blinded to their systemic nature. However, if we see this issue from another perspective, we notice that there is no single variable that directs the whole process of the evolution of objects; the multi-factor causalities are similar to that of biological evolution. Objects and biological organisms both evolve under the pressure of selection containing enormous number of factors. In other words, we may not be able to move the way of material development how we intend to, but only assume we have the ability to do so. Not willing to surrender ourselves to our systemic nature nor possessing the ability to create a world following our intentions, we create a situation of dilemma and conflict. A "good" design has no guarantee to survive; it may be eliminated under influences of politics or of the stakeholders. Likewise, a "good" gene has no guarantee to spread widely if the "ship" of genome it is aboard performs poorly as a whole. The power of a single excellent gene cannot alter the result of a low reproductive rate and neither can a good idea make products sell if the environment is not prepared for it. In nature, there are self-adjusted mechanisms to maintain the dynamic equilibrium of the system to some extent. But in artificial systems, we have not yet acquired the wisdom from our purposive thinking nor the complete ability for carrying our ideas out. Approaches we can take are various – gaining knowledge from studying nature is a promising one. As Paul Hawken (1993, 54) states in *The Ecology of Commerce*:

Rather than argue about where to put our wastes, who will pay for it, and how long it will be before toxins leak into the ground water, we should be trying to design systems that are elegantly imitative of climax ecosystems found in nature.

3.3.2. Teleological and Teleonomic

Before moving into the discussion on ecology and objects, some concepts regarding the non-purposive systemic nature and human's purposive approaches to developing man-made environments need to be further clarified. The clarification may help designers rethink and redraw their

boundaries of responsibilities. At the time of accepting the fact that designers are not fully capable of predicting and controlling the evolution of objects, we should define our responsibilities by regarding ourselves as opportunity givers to the evolutionary possibilities. Again, it has been emphasized that evolution is a process operated under the principle of probability. In most cases, the designer's task is not to design human behaviour or the sequence of actions directly, such as the sequence of using a subway system or operating a remote control. Rather, the modification is achieved through encouraging users to engage in a directed way, consciously or intuitively. In other words, what designers should and can do is increase the opportunity of certain modifications and changes, which, in a larger scope are called evolution. In nature, forces of selection work in a similar pattern. But we should first make a distinction between two relevant terms, teleological and teleonomic, the latter being used in biology.

Both terms *teleological* and *teleonomic* embody the concept of "purpose," but with different meanings and subject to different usage. Mayr (1976, 389) defines "teleonomic" as follows: "A teleonomic process or behaviour is one that owes its goal directedness to the operation of a program. The term 'teleonomic' implies goal direction. This, in turn, implies a dynamic process rather than a static condition, as represented by a system." For instance, the activities of migration, courtship, and ontogeny of animals are goal-directed, thus they are teleonomic. These purposive behaviours and developments are dynamic processes rather than stationary systems. On the other hand, teleological means a goal-directed action that constitutes the concept of future goals and the "why" questions. We produce an artifact with a purpose in our minds, so that the artifact becomes an "end-directed" system. We are aware of "why" we produce it; thus the action of producing is teleological. Contrarily, our body developments are not teleological, they happen not because we have a future goal in mind when we start to grow, but because the process of development has been implemented in our body programs recorded in our genes. Similarly, animals are directed by their inherent programs that lead to the productive fitness of a population in a teleonomic sense. But they do not do so by thinking the question of "why" or with considerations on their future generations. Likewise, a programmed machine that yields products is functional, but it is not aware of its finality of use. We may regard a stationary system, e.g., a transit system, as functional or purposive. But, according to Mayr (1976), a programmed machine and a transit system are not goal directed just by themselves in a literary sense either. For instance, a car has a potential to move, which may be called its "embodiment" in Ihde's sense, but it is not a goal-directed object just by its inherent properties. Or a drug has a potential to cure illness, but its inherent property of curing does not make it a goal-directed object. However, since both objects may also be called teleological, Mayr suggests solving this confusion by assigning two terms to refer to the functional properties of systems and to the teleonomy and other goal-directed processes. The functional properties of systems remain a category under teleology.

In nature, we may say it is God who plays the role of making teleological decisions. In the artificial world, the decision-maker is human. Designers may implement systemic teleonomics into products so that they show certain characteristics of intentions in the evolution of objects. However, the products may not follow designers' teleological expectations exactly. Once a product is distributed out of designers' and manufacturers' hands, it follows only its implemented "program," not the designer's intentions. In order to explain this concept more clearly, we must refer to the term "program," which is discussed in [3.3.5.]: An Analogy between Living Organisms and Objects.

3.3.3. Ecological and Artificial Systems

So far, I have tried to develop an introductory concept about ecology and its relation to artificial systems. Now, we should further our discussion on the principles in the ecological and artificial systems.

Ecology is a science concerning organisms, including their abundance and distributions, and their interactions with the environment, and considering factors and phenomena that are influential and related. This concept embodies a very broad range of knowledge, including biology, chemistry, meteorology, and so forth. Ecologists play a role to integrate these different kinds of knowledge and develop a discipline concerning the whole that cannot be achieved by any single discipline. Papanek (1983, 136) points out the holistic nature of ecology: "The basic truth at the heart of ecology is that nature is indivisible, and cannot therefore be comprehended through the study of its isolated fragments." The conception of ecology appears familiar to designers, who only have to replace the term "organisms" with "products" and change the content of the elements in the environment. Knowing the definition of ecology alone does not provide much help, what we should apply here is its principles. In the following, I will focus on concepts in ecology that are relevant to the roles of objects proposed in this chapter.

A very important concept used to identify the relationship among different species is called bioenergetics, which is the economics of energy and materials within an organism and a system. The species population, which is the basic unit of ecology, is

the entity that has been adapted by modification of its gene frequencies to a particular ecological niche, that interacts with other populations in the same habitat, and that plays a unique role, albeit of varying importance, in the processes of energy transfer in the ecosystems of that habitat (Boughey, 1969, 1).

The species population is traditionally determined by morphological basis in taxonomy; two species populations may play a similar role regarding its ecological niche in two habitats. For example, the role of a population of black bear in a boreal forest may be equivalent to another population of Grizzly bear in another forest in terms of their trophic level in the trophic structure

of communities. Their trophic level in an ecosystem is based on the food chain, which is the sequence of feeding. A food web is a complex structure formed by food chains that are interconnected in an ecosystem. The flow of energy plays a crucial role in a food web; every population of species obtains a unique position according to the distribution of energy. Nevertheless, transformations of energy and materials are only two dimensions of an ecological niche. The niche is "an abstractly inhabited hypervolume," according to ecologist G. Evelyn Hutchinson (1965, 26). The term "hypervolume" refers to a volume defined by dimensions (n) more than three, and can have up to an infinite number. Other dimensions in addition to the factors of energy and material can be nesting, temperature, nutrients, and so on. This concept is developed to describe an abstract concept that brings all of an organism's requirements together. Assuming two species that occupy two similar ecological niches, changes of environmental conditions, such as a dry season, may cause competition between these two species in order to obtain limited resources and, therefore, results in rearrangements of populations of both species. Species that fill similar niches in different regions are called ecological equivalents or ecological counterparts. They may be different significantly in physical appearance, such as bison in North America and kangaroos in Australia, but can also be very close (Brewer, 1979). Without including the dimension of energy, some overlaps of niches can occur without extinction of species. In other words, some noncompetitive uses of resources are possible. In sum, the ecological niche is "an abstract role in an ecosystem ... defined by [a species'] relationships to the physical environment and other organisms" (Brewer, 1979, 162).

The concept of "niche" in an ecosystem is similar to the "role" I proposed in the ecology of objects. Imagine a simple model, which consists only of one dimension that is function. Any object that performs the exact function of another becomes mutually replaceable in this model. A cup can be your hands held together, – a pop can, a bowl, or other things that perform the same function. But in a real-world situation, the dimensions of niche, or role, are literally infinite, both in natural ecosystems and in artificial systems. Among these dimensions, some are more important than others. Therefore, in the model shown at the beginning of this chapter, these dimensions were grouped into three categories. Within these categories, some dimensions overlap others, and some cross the imaginary boundaries of these three roles. Every object occupies a unique niche and thus plays a unique role. We may be able to replace one thing by another, but can only do so in a partial sense.

Although the equilibrium of an ecosystem is dynamic, achieved through changes of species populations and other factors, an ecosystem also has an intention towards maturity. In a more mature ecosystem, the use of energy is more effective and more economical, and the structure of the system is more complex. In a less-mature ecosystem, species are "short-lived, easily dispersed, [and] able to colonize with rapidity virgin areas...". These species are "opportunistic species, subjected to a dynamic type of selection, often for prolificness" (Margalef, 1969, 387). Interesting enough, the above description of an ecosystem seems also valid to describe product

markets. A more mature market allows fewer opportunists and some products are likely designed to survive a longer period of time. This example shows how principles of nature can also be observed in other systems. Although the designer's contributions to the maturity of a market are relatively limited, designers are able to offer opportunities to increase the probability towards a more mature system.

3.3.4. Evolution in the Ecology of Objects

The issue of evolution in the ecology of objects is of particular importance to designers because it is closely related to the consequences of design interventions. The term "evolution" has been used extensively referring to the process of change in the cases of objects that are different from their previous versions, whatever they might be, in terms of morphological and functional differences. The book, *The Evolution of Useful Things*, written by Henry Petroski, offers the above vision a footnote. In this book, the evolution of objects is regarded as objects' history of morphology, in which every object with a new physical resemblance and function is taken into account as a new "species." Obviously, he is not satisfied with the previous explanations on why objects are so diversified. For instance, he mentions Adrian Forty's opinion, written in Forty's book, *Objects of Desire*, that there are two reasons to answer the question of object's diversity. The first is that the process of invention is a cycle: new things create new needs and new desires, more complicated machines demand new tools and technique, and all these factors stimulate new designs. The second is that designers have intentions to express their creativity and given ability of art (Petroski, 1994, 28). Petroski believes that there must be more factors coming into play in the evolutionary process of things. He tries to depict these factors by giving examples of many evolutionary cases, such as paper clips and pencils. Nevertheless, the definition of artifact's evolution is not completely developed in *The Evolution of Useful Things*.

In an ecological sense, evolution is "a process of populations" (Brewer, 1979, 84). Individuals do not evolve; they survive a certain period of longer or shorter time and result in changes of their proportions in a population. Mutation is only a source of the genetic variability in an evolutionary process and has nothing to do with adaptation. It is a process of selection that achieves that (Mayr, 1976). Instead of emphasizing objects' morphological changes, we should try to observe the evolutionary process from a more meaningful viewpoint that can yield new insights and knowledge from a design standpoint. Designers have always been concerned with how to improve our well being, whatever this term represents; this concern is teleological, and is different from nature's non-teleological essence. If we neglect this major difference, we will have opinions similar to what Gillo Dorfles claims: if we base our observations strongly on evolution, the risk is that we will find the legitimacy of evolution more in the history of technology rather than in the history of industrial design. This is because most objects of our everyday life can be traced back to their original archetypes in objects' evolutionary history (Riccini, 1998, 48). If the evolution of objects is observed from a morphological view – from their original archetypes to their present looks, – we will draw the same conclusion as Dorfles'. However, if we observe the

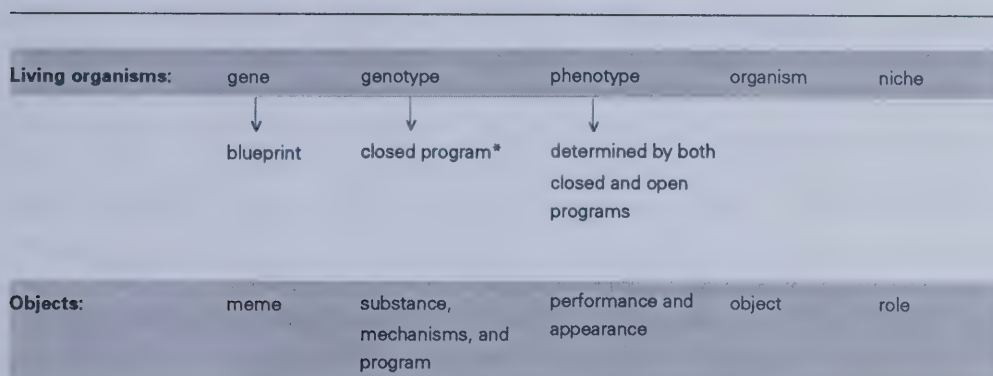
evolution of objects from a different view, to take into account the satisfaction of living conditions as part of the indicators of evolution, we will find the legitimacy of evolution more in the history of design, or planning the artifacts in a broad sense, than in that of technology. The progress of technology alone does not necessarily mean the improvement of well being. In other words, people living in society of less material possessions are by no means less happy than people living in a highly technological society. It is the ability to apply technology to serve people - the ability of design – that makes objects evolve in a meaningful sense. Technology alone can only affect the technological aspect of objects.

In biological evolution, changes have nothing to do with judgements of good or bad, only have to do with fit or not fit. Observing the evolution of objects through morphological changes and the causalities of these changes is no different from observing biological evolution, which is forced by organisms' programmed teleonomy, because without teleological forces, objects can still evolve in human history as species in natural history. As Manzini, who applies the ecological metaphor to products, writes: "[Products] appear as self-maximizing entities, which means they are endowed, like living creatures, with an impulse toward reproductions of themselves (or better, of the informational programs that characterize them.)" We need some other tools of observation that can reflect the human value system, or teleological thoughts, to read objects' evolutionary process. In the model proposed in the beginning of this chapter, "meaning" as one of the coordinates in the referential framework, can satisfy this need. It is more meaningful for designers to observe the evolution of objects from the perspective of their roles, placed within the referential framework, than from their appearances - usually accompanied by functions and other factors that affect objects' fitness. The shift of focus from objects' physical qualities to roles is a step that enables designers to see what cannot be seen clearly and to explain what cannot be explained explicitly from conventional approaches.

3.3.5. An Analogy between Living Organisms and Objects

Insofar, natural ecosystems have been compared to the ecosystems of objects, and ecological niches to the roles of objects. Now, we will do a closer inspection of elements of living organisms and objects and draw one-on-one analogies between the elements under two categories (Figure 3-2).

Let us begin with the smallest unit, gene, of a living organism. The role the gene plays in the evolutionary process is still controversial. Some believe the gene is the vehicle of information; others argue that the body is the gene vehicle, and the gene is the replicator and the unit of selection in evolution. But there is also consensus on some characteristics of genes, that they are regarded as the blueprints of life. The term "gene" has no universally agreed-upon definition, but most geneticists would agree with a general description that a gene is a portion of chromosome consisting of a sequence of base pairs in a DNA molecule which contains information for



*Program = blueprint + instruction

Open program = genotype and instruction that incorporate additional information acquired through learning, conditioning, and other experiences

[Figure 3-2] An analogy between living organisms and objects

constructing a protein molecule (Mayr, 1997, 307). Genes function as blueprints, passed from generation to generation with high copying-fidelity (Dawkins, 1976). The totality of the genes, or genetic information, of an individual is called genotype. The term “program” in Mayr’s definition of teleonomy contains both the information of blueprint and instructions for how to use the information. Genotype can be seen as a closed program that controls the behaviour or other biological processes of organisms toward a specific end in teleonomic processes such as the developmental process of a tadpole to a frog. The biological processes of organisms can also follow their “open programs” which incorporate information in addition to the inherent information of genotype through learning and other experiences. The phenotype is defined as the “totality of the characteristics (the appearance) of an individual resulting from the intervention of the genotype (genetic program) with the environment during ontogeny” (Mayr, 1976, 10). For instance, a pair of twins who share exactly the same genotype can develop, behave, and appear differently during their ontogeny. Except very few examples, genes, or the blueprint, remain stable during ontogeny, and so does the genotype. Phenotype is controlled by both closed and open programs, thus performing characteristics that are influenced by environmental factors, such as nutrients and humidity. Some scholars even argue that artifacts created by humans or animals, such as beehives, can also be taken into account as extended phenotype. As Dawkins (1982, 198) states: “once we have accepted that there are genes for building behaviour, the rules of the existing terminology imply that the artefact itself should be treated as part of the phenotypic expression of genes in the animal.”

On the part of objects, the concept of meme is analogous to the concept of gene. It should be noticed that in its original sense, the meme is a unit of human beings instead of artifacts. It was

created to represent a unit of cultural equivalent of the biological gene, although it has not been widely accepted yet. Dawkins, who coined the word from “*mimeme*” from a Greek root and “*meme*” from French, proposed the hypothesis of meme in his book, *The Selfish Gene*, published in 1976. He defined the meme as “a unit of cultural transmission, or a unit of imitation” (160), which is very similar to his sense of gene, that is defined as a replicator and the unit of natural selection. Gene and genotype are elements that are essentially unchangeable in one’s ontogeny. They can be analogous to the basically fixed qualities of a product after manufacturing, such as the basic mechanisms and closed program. The performance and appearance of an object can be regarded as its phenotype, which is constrained by its physical restrictions but open to be modified and used within certain allowance. The term “program” is chosen deliberately by Mayr (1976, 394) to “avoid drawing a line between seemingly ‘purposive’ behaviour in organisms and in manmade machines.” A computer is a handy example to explain the notion of program. It is designed with separated machinery (hardware) and programs (software). A user can change settings of a computer under the constraint of software and hardware to personalize its performance and appearance of user interface. Although the blueprint and genotype of organisms are mostly unique in nature and those of manufactured products are identical with many others, at the level of phenotype, every organism and object is unique. And since the roles of an object are determined by its performance instead of its blueprint, every role is unique as well. The separation between an object’s blueprint and performance, or machinery and program, offers opportunities for designers to design products that encourage more user participation and afford more personal meanings. Designers can design a product, although identical to millions of others when it is produced, that is implemented with high allowance for in-depth user engagement and personalization. This approach makes the concept of “designing for the individual,” in Buchanan’s words, more realistic in industrialized societies. In his article entitled, “Branzi’s Dilemma: Design in Contemporary Culture”, Buchanan contemplates two approaches to contemporary culture, which he calls Branzi’s dilemma. He argues that tribalism and universality may co-exist on the ground of the new philosophy of culture without conflict. On this new ground, he writes,

the task [of the designer] is to design for the *individual placed in his or her immediate context*. Our products should support the individual in the effort to become an active participant in culture, searching for locally significant coherence and connection. Products should be personal pathways in the otherwise confusion ecology of culture (Buchanan, 1998, 85).

In his opinion, it is the designer’s pleasure and responsibility to design such a challenging pathway. Some other designers also express similar concepts of making products more personal and suggest approaches to fulfil such a task. Designing objects that possess capacity to be self-transformed is one approach among others. Meurer (1997, 122) suggests that “[p]roducts will soon have a self-transforming character, although their scope for doing so is still limited.”

Manzini (1995, 231) considers three possible evolutionary tendencies of artifacts, which appear to be “artificial species” in evolution: 1. many products embed “built-in obsolescence” and “the throw-away nature” resulted from high-speed production and consumption; 2. products become “mutable,” which offer diverse and complex services; and 3. they are coded with highly multiple languages to entail a precise communicative capacity to service different users groups. Designing for diverse users becomes more viable as the product allowance of personalization increases by means of software and programs.

Returning to the subject of reading objects with ecological metaphors, we will discuss an important argument about the object’s reproductive and long-lasting capacity of its informational unit, the meme. As discussed in the previous chapter, the meaning of objects does not require their physical presence in order to be created and sustained. The tower of Babel has never been built in any substantial form, but it is as meaningful as many other towers in towns where we are living. The “thing” that triggers our feeling of joy, fright, awe, repulsion, or other responses that objects seem to “carry” and pass on from objects to objects, from objects to users, and from users to users has not yet received a publicly agreed-upon name. Nevertheless, it has been described, discussed, and studied. Here, we can temporarily accept the term “meme” to represent this notion. Bateson (1972) states a similar concept of meme, only with the difference that he does not consider it as a separate unit, as gene, from ourselves. Rather, it is a unit of an expanded concept of our mind. This expanded mind lives in an ecology of ideas, composed by information, entropy, and other non-energy or material elements. He states: “the ideas, under further transformation, may go on out in the world in books or works of art. Socrates as a bioenergetic individual is dead. But much of him still lives as a component in the contemporary ecology of ideas” (460). For him, choosing the unit of evolutionary survival is important for not only theoretical purposes, but also for an ethical one. When we consider ourselves as expanded selves living in the environment outside of our skins, we become part of the environment. The environment will not seem to be our properties to exploit because our survival unit, the expanded mind, will survive from generation to generation in this environment. The “self” becomes inseparable of “experience” because the boundary made by the skin which separates the inward and outward self becomes less significant, and blurred (Bateson, 1972).

The unit of selection in evolutionary theories is still under debate, and the mechanisms of evolution are not explicitly clear. Some consider the unit of survival to be “organism-in-its-environment”, others believe it is species population, and still others think it is the gene. However, there are also some commonly accepted theories we can apply. An “excellent” gene, in the sense of improving fitness, created from mutations does not mean it can survive for a long period of time or spread out its copies widely. The criteria of fitness rely on the performance of phenotype in totality. An excellent gene can only increase the probability of survival through increasing the overall performance of an organism. On the other hand, a not-so-excellent gene may be able to spread widely because the ship of genome it takes performs well. In other words, natural selec-

tion does not reward an outstanding gene; instead, it rewards those which can “corporate” and perform well as a whole. The price an unsuccessful gene pays is not the immediate punishment of elimination. Instead, failure of gene means less probability of spreading out and of longevity. Sometimes, a gene that seemingly has no contribution to improving an organism’s opportunities of survival can be carried and passed on through many generations. When a species population faces changes of selection criteria, such as environmental changes, a previous “useless” gene may become the key determinant for survival.

Similarly, the success of a product does not rely on how much it can be sold but on how long it can last, how broad it can spread, and how meaningful it can be from a designer’s perspective. Assuming that the unit of survival is not the product, but the meme, we can say that the success of design relies on to what extent the memory of pleasurable engagement or other positive information related to a product can last, survive, and spread out. For instance, the classic contour-shaped Coca-Cola bottle is successful not only because it helps gather profits for the manufacturer but also because it has become a common memory of people around the world. For instance, in 1996, 53 artists were invited to use the contour-shape bottle as canvas to afford them new meanings in contemporary culture. The message of the bottle shared by the public is its meme. A meme may exist in other transformed formats which are different from its original form, and the message it carries can still be vividly clear after a long period of time and can mutate to diverse meanings.

An example about the evolution of objects is a piece of ancient Chinese jewelry made from two pieces of jade pendant, overlapping one another. It is a decoration worn at the left side of the waist with jade pendants hanging down to the thigh. Its name is “move-cease.” When the wearers, mostly scholars, move in a rhythmic path, two jade pendants contact each other and create pleasant sounds. It was used to remind wearers to walk and move in an elegant way. Nowadays, only very few people wear them and even fewer know the original meaning and function of wearing them. It becomes a pure piece of decoration bearing the symbolic meaning of Chinese images. Its meaning has been transformed, and its meme has mutated. The object with the same appearance now has a new identity and role.

Another example is the stone axes and steel axes used by a group of Australian aboriginals. The Yir Yoront group living on the west coast of Cape York Peninsula retained a stone-aged lifestyle before the European artifacts flowed in at the end of the 19th century from southern and eastern Queensland. One of the most important artifacts the Yir Yoront possessed was their stone axe. It was made of stone, pliable wood, bark, and gum; all the materials could be found in their immediate environment. They were used for knocking down firewood, constructing shelters, and hunting and gathering food. Anyone could use the axe, and it was primarily used by women. However, only a man could claim that the axe was his possession, a woman or a child could not.

Women had to constantly borrow them from their father, husband, or brother, and thus formed a regular pattern of kinship behaviour.

The European missionaries distributed steel axes to the Yir Yoront, not only to the men, but also to the women and children in free and abundant supplies. This led to a great change and confusion of the character of the relations between individuals. The axes became no longer a symbol of masculinity although the practical uses of both stone and steel axes almost had no difference. The steel axes didn't bring "progress" to the Yir Yoront, as expected by the missionaries, but brought a radical change of social structure caused by the changes in the axes' ownership (Sharp, 1952).

The revolutionary effect as an outcome of the introduction of the steel axes to the tribe has nothing to do with the substantially material and functional changes of the axes themselves, but with their ownership. Observing the effect from the point of view of morphological evolution of axes completely misses the point. It is the changes of roles of axes, concerning the man's privilege to public possessions, that becomes crucial to the reconstruction of social order in Yir Yoront's society.

3.3.6. Ecological Design

It is appropriate to conclude our discussion on ecology and the roles of design with a short discussion on the concept of "ecological design". Here are the meanings of some terms that refer to a similar concept. In the Brundtland Report of 1987, the term *sustainability* was used to embody the essential concepts of *equity*, *participation*, and *futurity*. The report states: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, 43). This famous definition was then widely adopted by many people working in design areas who created a term based on the idea called "sustainable design." Other terms appearing since the 1970s referring to a similar idea are *eco-design*, *green-design*, *environmentally affirmative design*, *environmentally friendly design*, and *alternative design*. All of them concern how to create a more harmonious relationship between humans, ecology, and technology through a design approach.

The concept of sustainability implies that resources on earth are limited. In this sense, the earth is conceived as a huge system and that the constancy of some variables in ecology is maintained by changing other variables. In other words, the counter-ability of nature to sustain the state of equilibrium on earth is limited. This is similar to the situation that a human body becomes sick when one's illness overloads the self-adjusting or healing capacity. Nevertheless, a different concept called the Gaia hypothesis proposed by James Lovelock in 1979 refers to a unified planetary world view. Lovelock (1991, 3) hypothesizes that "the biosphere is a self-regulating entity with the capacity to keep our planet healthy by controlling the chemical and physical

environment." The Gaia theory, which regards our Mother Earth as a living planetary being, considers that the self-adjusting capacity of our environment is better than what we estimated previously, and the living organisms are not merely passively adapting to their ecosystems under pressures of selecting the fitness, such as what Simon (1969, 132) claims in *The Science of the Artificial*: "The artificial world is centered on (an) interface between the inner and outer environment; it is concerned with attaining goals by adapting the former to the latter." Instead, living creatures have shown abilities to improve the whole condition of the environment to make it more livable throughout natural history. These improvements are achieved unconsciously by efforts of all creatures that are different from human's teleological modifications of the environment (Lovelock, 1991, 3-7). Since all elements on earth are interconnecting together and function as part of the operating systems of a big organic creature, our earth, the artificial world created by human beings may be interpreted as part of this "natural" process of the planet. Some scholars worry that the Gaia hypothesis may provide reasoning for validating human activities on earth. If what we have done are also parts of the "natural" process, then why should we be aware of the sustainability of the environment? Certainly, this way of interpretation of Gaia distracts Lovelock's original meaning. What he proposed was that culture and nature have co-evolved for thousands of years – the reciprocal interaction between human activities and nature may be closer and more active than previous assumptions.

Critics have been trying to expand the definition of the term "environment" into the cultural sphere, and thus the phrase environmental sustainability should also cover the intelligent properties and cultural values created by humans. Arnold Berleant (1994, 257), a phenomenologist, defines environment as "a dynamic perceptual/cultural system that assimilates person and place." However, we should not omit the essential differences between nature and culture. One of the differences is their length of evolutionary history. Placing ourselves in a large scope of history, we are both creatures of nature and culture. Konrad Lorenz expresses: "Man is by nature a creature of culture" (Papanek, 1983, 136). But the short history of the "cultural" self has no grounds to compare to the magnificent history of the "biological" self. E. O. Wilson (1993, 32) reminds us that "the brain evolved in a biocentric world, not a machine regulated world." Our perception of aesthetics, as one example among others, is still influenced by our prehistoric memories. For instance, Dr. John H. Falk has conducted an experiment of landscape preferences for about 20 years. Regardless of regions and ages, most participants showed an innate and imprinted preference for grasslands and pictures of them even when they had never lived in one. The reason for this result may be, Falk theorizes, in our species' early evolution in the savannah of East Africa, the memory of the grass landscape had genetically imprinted to human species (Hiss, 1987). We are animals of nature no less than humans of culture.

The term ecological design or ecodesign should not be reduced to a form of design that is merely able to sustain the capacity of the ecosystem, which is depicted as an input-output model of energy and resource consumption. It should also include the ethical and human aspect of

design. I suggest that the term ecological design can be interpreted in a completely new way: it is design concerned with developing a healthy artificial ecosystem. The ecology of the artificial requires care and love, such as what we do to some living creatures. Manzini uses a metaphor of “a garden of objects” to illustrate a similar concept. He writes:

Now imagine a garden with flowers and fruit trees. Think of the attention, time, and energy required, and think of the results: flowers and fruit. For those who have grown them, value cannot be measured in banally economic terms. Of course, a garden should produce flowers and fruit, but the person tending it does so for a more general reason - love of the plants. Now try to imagine an analogous relation between objects. Think of objects that are beautiful and useful as trees in your own garden, objects that endure and have lives of their own, objects that perform services and require care (Manzini, 1995, 239).

In nature, the principle of competition among species populations has no mercy. But it achieves the principle of equity, participation, and futurity stated in the Brundtland Report elegantly. In the world of artifacts, we need ethics – our ultimate weapon to defend our humanity – to counterbalance humans’ lack of wisdom in managing our world.

Discussion

Thus far, two major facets of understanding objects have been discussed – roles, and meaning and functions, to unravel the ways in which objects involve users. The attempt here is to propose a fundamental model of conceptual framework as part of a larger terrain. This is a terrain of artifact studies. It embraces a larger scope than the scope of this study in two aspects: from studying objects to studying the artificial, and from concerning users to concerning the subjects involved in the studies within the terrain. The terrain contains a pool of knowledge and conceptual tools that help designers participate in the planning of the artificial. Approaches and attitudes taken by different studies in the terrain are united by a central concept: developing a healthy artificial ecosystem. Manzini (1995) proposed the idea of the ecology of the artificial in an article entitled “Prometheus of the Everyday: the Ecology of the Artificial and the Designer’s Responsibility”. This concept leads to three important interrelated directions of design development that are essential to preparing the soil for growth in the terrain. The first direction is to understand an object as a subject with a unique life cycle, and to return from understanding objects as ideas, such as representations, to objects as material things that matter. The second direction concerns two essential aspects of design products: user participation and the embedded desirable values. The third direction is to develop a new design culture and new aesthetics. The former is based on the nature of design interventions in which the designer mainly provides opportunities for change rather than prescribes direct solutions. The latter corresponds to the new material culture and development in the transformation of technology.

4.1. Understanding Objects: Each One Has a Unique Life Cycle

Objects need to be rediscovered and understood as more than representations. Verbeek and Kockelkoren (1998) point out that things are not only ideas and signs, or icons of our lifestyles. They are actually material things that play roles in the social interaction that generates new technology. Three levels of understanding are necessary: understanding human factors, the meaning and function that objects have for people, and objects as subjects in the ecology of objects. The focus of the preceding discussions is on the second level of understanding, and a conceptual framework is developed mainly based on two kinds of observers: the user and the designer. In the following, the third level of understanding will be discussed in order to expand the proposed model to other domains in the terrain of artifact studies. Studying objects prepares a basis for further development in an ecology of the artificial.

The study of human factors has become a discipline since the Second World War. Four major categories of human factors have been distinguished: physical, cognitive, social, and cultural (Whitney, 1995, 14). Unlike ergonomics, which emphasizes the effectiveness and efficiency to complete a task particularly in a working environment, the multidimensional human factors concerns with human values that are additional to effectiveness and efficiency. Many designers have been aware that efficiency is not always a favourable factor in product use – sometimes pleasure of use can impede efficiency. For instance, listening to a close-to-perfect recording of music produced with high-technology compact discs may not bring as much joy as listening to an old vinyl music plate with scratchy noise and impure sound. The human factors involved in this example may be that the latter brings a warm human touch while the former delivers an impression of cold technology.

The second level of understanding concerns an object's value that relates to humans, an object's human factors. In previous chapters, objects' meaning and function have been discussed especially from the designer's point of view, and the term "meaning" is used to represent the values of objects perceived by their users. Additionally, objects are also agents for mediating actions and cultural changes, records of human activities throughout human histories, and active contributors to meaning situations. The field research reveals different layers of context within which the hiking backpack plays its roles. Although meaning is the term used in the field research to describe the value and relationship users have with their backpacks, backpacks cannot be reduced to ideas or signs. Meaning itself does not enable the user to survive in the wilderness – the backpack as a thing does. There are roles objects play beyond their uses and meanings observed from a human perspective. In short, at this level of understanding, objects are studied based on a human-centred premise. Nevertheless, human factors are only part of the factors that determine an object's niche in a system, although they are the dominating part for artificial objects. To explore factors beyond human factors, we need to rediscover objects in a way similar to ecologists studying species in an ecosystem. The next level of understanding objects focuses on the factors that characterize an object's ecological niche in a system including and transcending human factors.

Often, we use the same conceptual ruler to measure artifacts and natural objects. We look at a tree and think about its shade for rest, its fruit for eating, its wood for starting fire, making furniture, and building a house. These are a tree's human factors, which are part of the "n" number, total dimensions of a hypervolume, that defines a tree's niche in an ecosystem. As we also understand, a tree is a playground for squirrels, a nesting place for robins, or a landmark for migrating butterflies, all these factors add up to the other part of the "n" number. A tree in nature can exist with or without human factors, but it always exists as a member in an ecosystem and thus occupies an ecological niche.

An artifact does not exist without a human creator. However, as discussed in Chapter 3, what designers and producers create are a product's blueprint and its physical substance. The blueprint contains information for a product's closed program, which is determined by its creator. A product's phenotype and open program are the results of interactions with its environment. The open program is defined as "genotype and instruction that incorporate additional information acquired through learning, conditioning, and other experience" (Mayr, 1976, 361). To some extent, products, like species, are subjects that play roles that involve and transcend human factors in ecosystems.

Every object is unique if we take into account its phenotype after it starts to interact with the environment of use. In the product cycle described by Margolin (1994, 59), the first two phases, conception and planning, and manufacturing, belong to the "process of production." The other phases, discovery, use, and disposal, belong to the "process of consumption." In the process of consumption, every product has its unique life journey. In fact, its journey does not end at the time when it is disposed. It continues to interact with the surroundings until being completely destroyed, degraded, or disassembled. Some of them become pollutants, others may be reused, transformed, or degraded. Although, at this stage, it may mean very little to the users it encounters during its life journey, it keeps influencing other members and elements in an ecosystem. In an extended use of the term "meaning," a product "means" something to the land it touches, the sphere it belongs to, the objects it interacts with, the place it is buried, and all other participants in its life history. Product life cycle assessment has been carried out by some environmentally concerned companies and institutions to evaluate a product's environmental impacts during the process of manufacturing, shipping, use, and disposal. While the material aspect is important to a product's life cycle assessment, its immaterial aspect also needs to be taken into account. Information about a product's immaterial aspect involves human values and factors, and its material aspect concerns material factors including and exceeding human-centred considerations. Observing the life cycle of a product can be a work similar to observing the blossoming of a tree. Sometimes the result appears to be as predicted, sometimes it is disappointing, or sometimes surprising. The life history of every product is unique, and so is its meaning. In some aspects, designers are like ecologists who recognize the uniqueness of organisms. Designers are creators, observers, as well as users. They join the users in the process of interactions with products, including creating, observing, and using.

4.2. Two Essential Aspects of New Objects: User Participation and the Corresponding Desirable Values

In the current development of products, there are two aspects that are especially important to designers: user participation and the desirable values objects carry or correspond to. These two aspects can be read as two phases of the designer's task in relation to the people for whom

designers design. To say that the well being of humans is the goal of design practice and the measurement of progress illustrates an ideal that is illusive and difficult to achieve. There are always different levels of beneficiaries, some receive more direct benefits than others in different phases of change caused by design interventions. Also, human values are diverse. Designers have long faced the questions of “whose values?” “whose experience?” and “whose benefits?” that are considered to be referential factors in decisions made in each design project, since a design cannot please everybody. Different human communities can be identified, members in which may be regarded as target users of a designed product. Arnold Berleant (1994, 266) illustrates four modes of community: the rational, the moral, the organic, and the aesthetic. For him, individuality and self-sufficiency are ideas that do not hold in modern industrial society. Within the four modes he describes, only the fourth community – aesthetic community – fulfils his idea of developing “a unity of individual and social in which neither dimension dominates but each enhances the possibilities of the other” (266). The unity of experience, human fulfilment, and interdependence found in the notion of aesthetic community frees the boundaries of culture, nation, or other forms of subject fragmentation (Berleant, 1994). Similarly, Michel Maffesoli (1993, 141) uses the metaphor of “tribe” to describe the “emotional community.” It is unified by shared feeling and experiences, the “aesthetics” of community members. The tribes are “characterized by fluidity, by punctuated gathering and scattering” shifting from one group to another (Maffesoli, 1993, 148). On the other hand, the concept of “designing for the individual,” which is “to design for the individual placed in his or her immediate context,” described by Buchanan (1998, 20) may seem very different from the above concept of community at a first look. However, it indeed echoes Maffesoli’s idea of what he called “postmodern tribes.” Identities of individuals fluctuate, change, and shift according to their immediate contexts. A person can play roles within their professional activities, but she also participates in various “tribes” with different means of recognition and collective images (Maffesoli, 1993).

4.2.1. User Participation

The end user of a designed product participates in two phases of a product’s life cycle. One is co-shaping the values and features of a product in the process of production, and the other is engaging a product in the process of consumption. Before the popularization of mass-producing manufacturing, users had more direct opportunities to participate in the process of production, such as what happened in a craftsman’s workshop. Users often became a necessary part of production. In the case of building a brick house, the built space was usually tailored to fulfil individual needs. Even nowadays, the planning stage of interior design is seldom carried out without user participation. However, in the case of mass-produced products, inviting users to participate in the design process is more difficult, but not impossible. It demands complex methods to invite users to share their thoughts, values, and experiences in an industrialized process of production. Users are not to be represented by mere statistic figures; their participation should be genuine and in-depth.

Franklin (1990, 116) discusses the division of labour in modern society and how it results in alienation between the user's and the producer's experience in the expert-driven "prescriptive technology." The prescriptive technology is a way of doing a task by dividing it into specific steps, as opposed to the "holistic" approach, where the producer controls the whole process of work. Since modern science has brought the concept of separation of knowledge from experience, people tend to trust experts more than their direct experiences. It results in a less direct reciprocity between users and producers; and the planners and planees – people who confront the plans – seem to be separated entities. Franklin argues that the conversation between users and producers should be re-established, and users' experiences should gain more attention than they enjoy in the current planning process (Franklin, 1990, 125-126).

The second phase of user participation concerns products in use. Selected products will present more engaging qualities and encourage more user interactions in the future. Concepts such as conviviality, festive engagement, and potential products reflect a register of active participating capability of products. The concept of conviviality was introduced by Ivan Illich (1973) in his book *Tools for Conviviality*. The term conviviality refers to "autonomous and creative intercourse between persons and the intercourse of persons with their environment: and this is in contrast to the demands made upon them by others, and by a manmade environment" (24). Technology that embodies the quality of conviviality encourages interactions among people and their environment, such as the bicycle (Illich, 1973). Borgmann (1995) discusses about the festive city life, in which people participate in festive events, games, plays, and concerts that demands engaging design of street furniture, public spaces, sidewalks, and other elements in a city environment. He writes: "The good of design is the moral and cultural excellence of the humanly shaped and built environment. More particularly, I want to urge, designers are charged with making the material culture conducive to engagement" (Borgmann, 1995, 18). Claudio SaLocchi (1995, 85-86) proposes the idea of "potential products", which is part of four levels of products he classifies: general products, expected products, amplified products, and potential products, arranged from "silent" to less silent ones. In his terms, general products are for "making everybody happy"; expected products are "contemporaneous" products; amplified products are "unique products"; and potential products are "rich products". The last level are products that "have the ability to anticipate, as though enabling the consumer to discover an area of use to which to relate that not yet occurred to him" (SaLocchi, 1995, 86).

4.2.2. The Corresponding Desirable Values

Another important aspect of new products is the desirable values that products embody and correspond to. Sustainable design, ethical design, and user-centred design are some examples that reflect particular values designers consider for the planning of products. Two sources of references are particularly important for designers to establish the scales and dimensions of values that shape the qualities of designed products. One is the community of users, and the other is the general public in an extended time scope. Different communities of users have their

systems of values that correspond to their social, cultural, and behavioural differences among user groups. At the same time, designers are also socially entrusted professionals who are responsible not only for a particular group of users and “the immediate desires of society but also for the well-being of the good that is in their care” (Borgmann, 1995, 18). A designer’s task of serving both the target users and the public, including the future generations, requests not only a responsible attitude of design, but also knowledge that supports the attitude. New design culture and new aesthetics based on the knowledge which sustains the trends of future products are new areas waiting for further cultivation.

4.3. New Design Culture and Aesthetics

Many critics have stated their opinions about the future development of design activities, all of which contribute to the “new” design culture that redefines its position within enormous numbers of disciplines in the coming century. Aesthetics is an essential portion in design culture since it relates to forms and other product interfaces that users confront in the first-line engagement. Here focus will be on the issue of design culture and aesthetics from the standpoint of the essence of design intervention, particularly the product-creating aspect of intervention. In many cases, the position a designer takes as a creator and planner is actually as a blueprint builder – the person who designs closed and open programs with corresponding physical substance. The program can be analogous to an organism’s genes plus the instructions of using the stored information in genes. The program of an organism guides its life cycle, although its exact life journey is not predictable or controllable.

The loss of control over the design product results a sense of anxiety, such as a phenomenon that Richardson (1993, 41) describes as “two deaths of the designer.” In the case of the first “death,” he argues, “designers work as though they have control over the product once it enters the use-place. Although, as we have seen, this is not so” (41). Users usually interact with and understand the meaning of a product through their own systems of reference and experience, not the designer’s. In the case of the second “death,” designers possess only limited power in both the “opportunity to define the function while working on the product, as it is *a priori*, a given” (40), and the fundamental issue of why a product should be created or not. They work on the level of individual products (e.g., Sony television) rather than the category (e.g. television). The existence of television, which had generated strong social impacts, is beyond the designer’s control. Richardson suggests that designers should learn how to “live with the deaths” by embracing the unpredictability of interpretations, developing tools to create guidelines to instruct users, conducting research on user’s and culture’s interests, and being socially responsible and conscious (Richardson, 1993, 42-43).

If we return to the argument that designers are blueprint builders, the fact of designers' "losing control" in product use becomes not only positive but also necessary. In nature, the environment a new life will face after it is born is not completely predictable, although in many situations, chances are the environment does not change vigorously within a short period of time, or two generations. Genes that carry a blueprint which enables the gene carrier to survive in, say, a dry environment, have a good opportunity to be passed on to the organism's next generation in a desert environment, and thus also equip the new generation for the alike living condition. In other words, in the evolutionary process, genes that survive after many generations are selected because of their fitness to the past, not to the future environment. Since the blueprint remains unchanged in an organism's life process, the embedded message in genes does not ensure the success of the gene carrier's survival especially when the living conditions change. Therefore, additional information must be obtained through learning, and becomes a part of the open program. In short, a fixed program that has total control over the course of a life cycle has trouble dealing with any new condition that is different from the past. The flexibility to adapt to the unpredictable future is necessary to a biological organism, and also to a manmade object.

The open program of a product can "learn" new information by being renewed and by self-adjusting or self-transforming. In the first case, for instance, a car can be maintained, fixed, and its parts can be replaced while a computer can be upgraded and new programs can be installed. In the second case, there are objects that can "learn" from the gathered information in its immediate environment, such as light-sensitive glass or "fuzzy" washing machines. Franklin (1990, 126) refers to Henry Regier's opinion that "with every development new domains of ignorance are discovered which become evident only as the project proceeds." No blueprint is perfect at the time it is created; it must open to learning to live with different environments as the life journey of the blueprint carrier proceeds.

As blueprint builders, designers intervene in objects by providing opportunities for changes to happen, not to control the change in a direct sense. Through design interventions in products, systems, and behaviours, designers prepare seeds and fertilize the ground to encourage the evolution of artifacts to move in promising directions. Manzini (1994, 38) shows his holistic vision similar to the above argument, as he writes: "a recyclable motorcar is better than a traditional one, but it makes no contribution to resolving the problem of urban mobility, nor the problem of unemployment, nor the conflicts between the North and South of the globe." The idea of proposing alternative paths to what they are today, he expresses, appears ambitious. However, "the aim is not to find 'the solution' for all questions, the idea, more modestly, is to propose solutions which contain some spark of innovation, meaning a new way of behaving or viewing the world" (Manzini, 1994, 39).

The designer's position taken in the artificial ecosystem is the blueprint builder and opportunity provider. Similar to a natural organism's life journey, following its embedded blueprint though

proceeding unpredictably, every object's life history is also unique. The new design culture and new aesthetics should be conscious of this fact, and welcomely correspond to the unpredictable in the ever-changing ecosystem.

4.4. Designing a healthy artificial ecosystem

The goal of designing a healthy artificial ecosystem best describes the direction of further cultivation and discovery in the terrain of artifact studies. This study is meant to contribute to this goal. In this study, the conceptual model based on meaning and roles provides a means of understanding objects and unravels a picture that shows their richness in meaning. Field research demonstrates how the hiking backpack participates in the user's life and in cultural and social contexts. The result of the field work reveals a small segment of sampled backpacks' life stories. The approach of this study is one among many others. It is like the work of sowing seeds in the terrain: every seed demands different nutrients of knowledge at different stages of development and they all develop into different shapes and sizes. The conceptual framework built in this study outlines the growing blueprint of an intellectual seed and the knowledge required for nourishing it.

Ecologists have developed a system to study and monitor the conditions of an ecosystem, such as its maturity or pollution levels. For instance, some species have been recognized as biological indicators of pollution. A stream with certain gill-breathing mayflies, stoneflies, and caddisflies indicates the water is clean, while the presence of a kind of midge fly larva generally indicates the water is polluted by organic waste (Brewer, 1979, 45). Does the health of the artificial ecosystem also expressed by certain indicators or referential standards? In other words, how do we monitor the health conditions of artificial ecosystems? There are certainly no simple answers for this question; even if there are, they must be constrained to specific cases and conditions. However, a well-known term: sustainable development may serve as a general rule that is applicable to the "health care" of ecosystems. The interpretation of the term should include both material and immaterial aspects, such as the caring of a person's health should cover physical, physiological, and mental aspects. Certainly, immaterial resources can never be literally "used up"; they are always sustainable. But they can enhance or decrease the quality of development. Overloaded information and meaning creates information and semiotic pollutions. Technological development without depth is not genuine growth. Under this general rule, the development of technology should be sustainable, and material and immaterial pollutions should be minimized.

As shown in the checklist in the field research report, factors that determine the role of an object are literally unlimited ("n" dimensional hypervolume of niche), but some are more decisive than others. The method of "key-factor analysis" used in ecology is to discover the crucial phases that determine population sizes. The more details of a life cycle ecologists understand, the more

likely the selection of the key factors can be possible. The analysis is bound to the scope of time and space, and only applicable to some species (Begon, 1990, 224). As for the life cycle of *product species*, there are also key factors that dominate the determination of the roles of a product. An important discipline of design is the ability to judge the most effective ways to intervene in the product ecosystems – by adjusting the roles of products, changing the environment, or/and modifying behaviour. A stage in design process similar to the key-factor analysis should be conducted based on the understanding of similar products' life histories prior to practising design interventions. Records of a product's life cycle, such as the life process of backpacks recorded in this field research, are assets that help designers carry out responsible design effectively.

In the theory of Chinese medicine, "a healthy person is in a state of dynamic equilibrium between the various balancing and interdependent forces, and energies that course through generate and maintain him or her" (Hirst, 1996, 42). Chinese medicine emphasizes preventive approaches. Diet, lifestyle, emotion, and the outer environment all can be the factors that influence the balance of the body, and therefore need to be regulated to maintain or improve the overall health. On the other hand, Western medicine focuses on treatment of the body's malfunction. While the concept of "fitness" is also common, it is a way for the body to "undertake sustained strenuous activity of some sort without undue fatigue or damage" (42). The concept of preventive medicine is relatively weak (Hirst, 1996, 42). The Western concept of medicine is similar to the problem-solving approach in design practice. If the system is healthy or "fit", it generally does not require prescriptions, or design solutions. Some prescriptions may also have "side effects", that is, being analogous to design practice, the solution that solves a particular problem may also create other problems in other phases. According to Findeli (1994, 55), there are four "worlds" of artifacts we encounter: the technocosm, biocosm, sociocosm, and semiocosm. Any disturbance (design intervention) in any of these worlds can also influence other worlds (initiate side effects). He suggests that designers "abandon the ideal of a system in equilibrium in favor of a dynamic conception of systems" and "modify our 'interventionist' model of design, replacing it by a 'regulator' vision" (Findeli, 1994, 57). His idea of dynamic conception of systems is close to the theory of Chinese medicine for the health of the body. The health of an artificial ecosystem should also be studied from a dynamic vision.

In *Faith in a Seed*, Henry Thoreau (1993, i) writes: "Though I do not believe that a plant will spring up where no seed has been, I have great faith in a seed. Convince me that you have a seed there, and I am prepared to expect wonders." Facing the challenge of sustainable development in our time, we have more tools and knowledge than ever before: knowledge of product recycle, life cycle assessment, and intelligent products; understanding the power of meaning, as Csikszentmihalyi, et al. (1981, 247) write: "we must learn how to use symbolic energy before all the physical resources are burned up"; new aesthetics, such as the idea that beauty equals environmental sustainability; the "earthworm theory", proposed by Franklin (1990, 121) who

believes that “[s]ocial change will come through seeds growing in well prepared soil - and it is we, like the earthworms, who prepare the soil.” And the list continues. We also have ethics, a powerful weapon to counterbalance our teleological nature. Leopold (1966, 220) points out: “An ethic, ecologically, is a limitation on freedom of action in the struggle for existence. An ethic, philosophically, is a differentiation of social from anti-social conduct.” In his perspective, the development of ethics is a process in ecological evolution, as he states:

All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in that community, but his ethics prompt him also to co-operate (Leopold, 1996, 220).

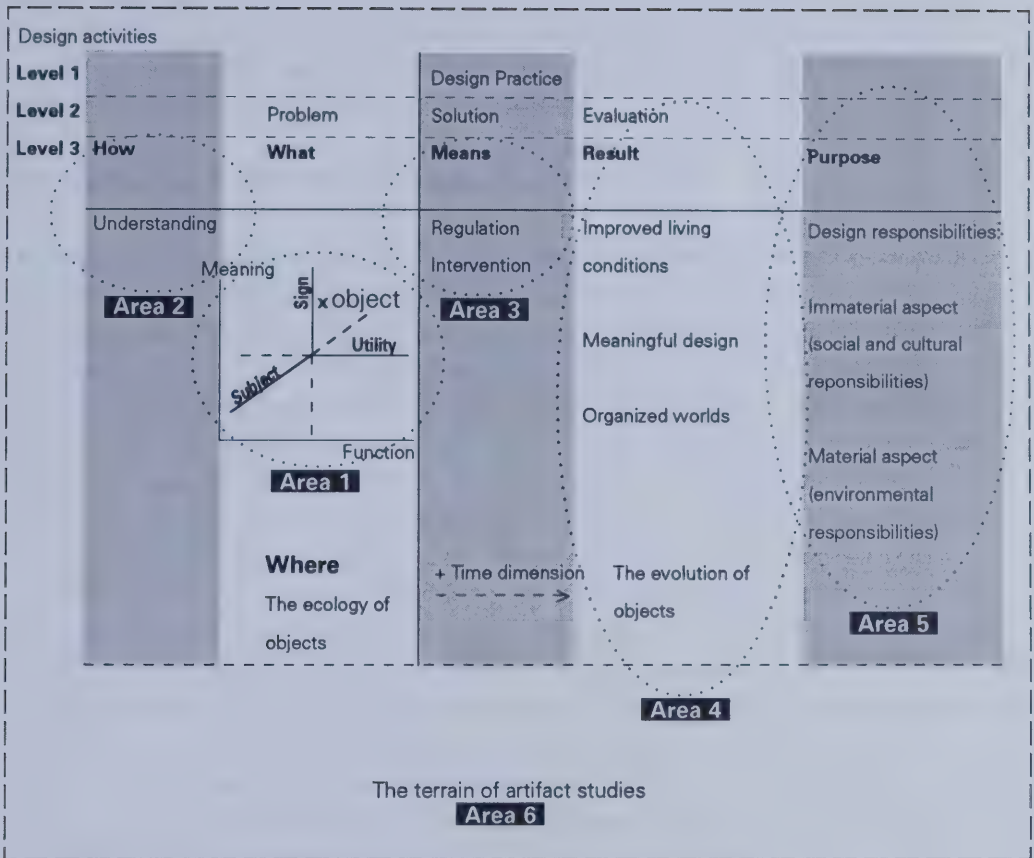
This concept on ethics may be arguable, but sustainable development certainly cannot be achieved without ethics. The goal of designing a healthy artificial ecosystem requires knowledge. This study can make a positive contribution to the development of the terrain of artifact studies. While this goal also calls for ethics to maintain a sustainable growth in this terrain.

4.5. Conclusion

The objective of this study is to show how objects can be studied and understood from a design perspective by applying a conceptual model, which centres on two key ideas: meaning and roles. This framework provides many means for approaching design related issues, and reveals some previously neglected facets of these issues that are obscure when applying other means. To conclude this study, some previously discussed issues are integrated to depict how this model suits the study of objects and how it can contribute to the design community. The position of this study can be illustrated by combining Figure 1-2 (p. 17) and Figure 3-1 (p. 51); both figures are placed within the terrain of artifact studies discussed in this chapter. There are six aspects, or six areas in the terrain (Figure 4-1) examined here: the core model (Area 1); the method of understanding and the field research (Area 2); the method of design intervention (Area 3); the result of design intervention and the evolution of objects (Area 4); the purpose of design (Area 5); and the terrain of artifact study (Area 6).

4.5.1. The Core Model (Area 1)

The model is the model of roles (Figure 3-1, p. 51) discussed in Chapter 3. The human factors of an object in user-object interaction can be categorized under two major references: meaning and function. Exploring the meaning and function of objects is a fundamental approach for artifact studies. In this model, these two attributes form a referential system for roles, which include the roles of utility, sign, and subject. In the preceding discussion, it has been emphasized that the meaning of objects is more than their sign meanings, and an object’s role of subject is an area that is important – nevertheless has not been well explored. The studies of objects’ meaning



[Figure 4-1] The terrain of artifact studies and the conceptual model in this study

have been misleading because the studies of meaning and sign have influenced by linguistics, which is not completely applicable to the study of objects. Objects make sense different from language. Objects can validly produce meaning when they play roles as utilities or subjects. Likewise, objects are functional when they become sign vehicles or subjects. The role of subject is separated here from other roles in order to accommodate some often neglected properties of objects in artifact studies: 1. objects being the purpose of engagement itself, instead of being mediators of something else; 2. objects delivering messages or effects that are unintentional, or performing their marginal roles; and 3. objects being active contributors in a meaning process, and participating in personal, social, and cultural changes.

Viewing the niche, or the ecological equivalent of role, of an object in an artificial ecosystem by this model is more accurate than by some other models that privileging the representational quality of an object and neglecting its subjective role. To posit an object's niche accurately is important because it helps monitor the consequences of design activities, contemplate the possibility of replacing an object to another, observe the evolutionary process of objects, select



the appropriate and effective method of design intervention, and search for the indicators and criteria of different conditions. This model functions as a conceptual framework in different stages of design so that a designer can concentrate on specific design problems in a given design project without losing visions in a larger scope.

4.5.2. The Method of Understanding and the Field Research (Area 2)

Understanding an object's niche in an artificial ecosystem can lead designers to understand objects at the stage of design research. The concept of niche involves replacing capacity. Different species that fill similar niches in different regions are called ecological equivalents or ecological counterparts, such as bison in North America and kangaroos in Australia. Similarly, two artifacts may play similar roles in different systems, such as the regular mail and the email. However, they may also be able to coexist in the same system without resulting in exclusive competition since their niches are not completely overlapping. There are elements in the user-mail relationship that cannot be replaced by the elements in the user-email relationship. Receiving regular mail from friends can be a special experience for those who have been used to communicating with email. If we understand artifacts from their utilitarian values, the email is arguably a superior replacement of paper mail. Email is more efficient, secure, environmentally friendly, accurate, economic, convenient to be sent, copied, and stored, and multi-functional, as it can also deliver sound- and video-clips. Nevertheless, if we take into account their symbolic and subjective values, regular mail generally delivers a more human touch that is lacking in email. Introducing a new design into a system or modifying an existing product can contribute to the changes of niches of related products. Observing an object's niche is a useful way to study the state of an object in its context.

The field research is an example showing how the conceptual model can be applied to understand an object and user-object relationship. Every backpack in the field research has its unique life journey. The records of these backpacks' journeys are their biographies, which are assets for designers to study and map their niches in different artificial systems. As designers read and analyse the biographies of backpacks, the records reveal factors involved in user-object relationships – some are obvious, and some are quite subtle. For example, freedom and independence are two common factors participants shared about the meaning of their backpacks have for them. Their backpacks are meaningful and important because they provide the freedom of movement and the possibility of independence when the users travel or hike. Some factors are rather personal. For instance, a participant expressed that her backpack motivates her to plan hiking trips. Other factors that affect an object's significance are relatively subtle. A participant added a black gear-jammer on her bright-colour backpack so that her backpack appears to be less bulky. The key factor involved in the niche of the gear jammer is its black appearance, not its utilitarian property. These important although sometimes elusive factors may not be observable by applying other research methods such as Action Analysis. Action Analysis focuses on the

user's physical engaging process with a product but leaves out factors such as its psychological effects on the user (e.g., the motivation effect of the backpack) in a user-object relationship. Concepts such as "readiness-to-hand" or "affordance" emphasize an object's utilitarian performance. However, in the field research, we notice that there are more factors involving an object's niche. Designers can use the records of a product's life cycles as a reference to locate the product's current niche, and to relocate its niche by means of design intervention.

4.5.3. Design Interventions (Area 3)

Although the focus of this study is on the understanding aspect of design, the proposed model also affects the possible approaches of design interventions. The factors that determine an object's roles fluctuates with its engaging context. Therefore, to adopt the model of roles means to construct a dynamic view of design interventions. There are three modes of design approaches that can be used to regulate an object's niche: interventions in products, interventions in systems, and interventions in user behaviours. Using one or more approaches to adjust an object's roles alters a static problem-solving approach and replaces it with a regulating version that maintains the system in which the regulated niche locates in dynamic equilibrium. The conceptual model emphasizes the relationship between the user and the object. Objects mediate their users' actions, goals, and thoughts. A pen in a writer's hand mediates the writer's thought and the paper. To improve the relationship between users and things helps reveal human ability and discover potential. Without a piano, Wolfgang Amadeus Mozart might not become who he was. The work of an object designer is to regulate the relationship between human, objects, and the environment through different modes of interventions. By analysing the factors that are involved in the roles of an existing object, designers can approach the task of regulating an object's roles effectively and appropriately.

4.5.4. The Outcome of Design Activities and the Evolution of Objects (Area 4)

To observe the result of design interventions is to observe the relocation of the artifact's roles in a regulated system. If the new role of an object is more meaningful and "fitter" in the system, the intervention can be regarded as positive. The meme, which is a cultural equivalent of gene, can serve as an indicator for the successfulness of a designed product. If a meme of a product brings more pleasurable experience to the user, and is continuously appreciated, remembered, and passed on from user to user, the product that carries the meme is successful. Viewing the outcome of design interventions by a product's role and meme is meaningful because the role of an object reflects human values.

In the evolution of objects, likewise, the changes of an object's role better indicates the state of evolution than its morphological changes. The role of an object can reflect the improvement of well being, which is what designers are concerned about, while the appearance of an object generally fails to reflect the goodness it brings to the user. Also, since the role of an object is

determined by its performance, not by its substantial quality, an object can be designed to perform diverse roles with the same physical property. The distinction between an object's substantial properties (genotype) and performance (phenotype) enables designers to design a product that suits individual needs and perform diverse roles. As a result, a designed product can afford more personal meanings and mutate to different roles in different cultural contexts more easily by means of programs, which control its performance. While an object's physical constraints still exist, they are essential to communicate an object's properties and to contribute to user safety. A chair can encourage sitting by means of its physical attractions and a well covered shaver is designed to ensure user safety. An object reveals and conceals its properties to the user through engagement and the process of cultivation. The meaning of an object generates form cultivation, which is a dynamic process that is not meant to be rigidly designed. However, a good design should provide opportunities for the process of cultivation to happen. Designers who participate in the evolutionary process of objects should search for appropriateness between engaging objects and banal objects since objects that invite too much engagement become burdens and objects that deliver too much meaning create semiotic pollution.

4.5.5. The Purpose of Design (Area 5)

There are different objectives in different design projects; nevertheless, good design should be socially and environmentally responsible. A design that is functionally sound is responsible for its effectiveness and efficiency regarding its usability. A design that is meaningfully sound is responsible for its meaningfulness that it brings to the user and a cultural community. A general rule we can apply to examine the responsibility of different design projects is the concept of sustainable development. A design that can improve human conditions and our relationships with other people, artifacts, and the environment with sustainable uses of resources is a responsible design. There are immaterial resources, such as meaning and aesthetics, that can be applied to achieve the goal of sustainability without sacrificing desirable values such as pleasure and comfort. The role of an object that brings pleasure of use can be maintained or even improved with alternative approaches by appropriately using aesthetic and meaning resources and decreasing the consumption of nonrenewable resources.

4.5.6. The Terrain of Artifact Studies (Area 6)

There are three major directions of design development that are essential for fertilizing the large terrain of knowledge into which this study fits. First, to understand an object as a subject with its unique life cycle, and to return from understanding objects as ideas to objects as substantial matters. Second, to explore two essential aspects of design products: user participation and the corresponding values of a product that fulfil the user's needs. Third, to develop a new design culture and new aesthetics that can reflect the design approach and perspective depicted in this study. The concept of designing a healthy artificial ecosystem summarizes the goal of develop-

ment in the terrain of artifact studies. The proposed model is an intellectual seed, among many others, that enrich this terrain.

Objects need to be rediscovered and understood. This study focuses on two human factors of an object, meaning and role, in user-object relationship. The term “meaning” has caused some confusion in design discourse, therefore, effort has been devoted here to clarify the idea so that the proposed model can be applied in design activities appropriately. Also the idea of subjective role is emphasized. Recognizing an object’s role of subject is a starting point to rediscover an object. The field research uses the method of biography of objects to study the hiking backpack’s life cycles. The record of an object’s life cycle includes its material and immaterial information, and also includes its user factors. To understand an object, or to understand its roles helps designers practice design intervention responsibly. Carrying out responsible design calls for both professional knowledge and ethics. This study contributes to the knowledge of artifact studies, while the ethical attitude guides the use of the knowledge.

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Appendices

Field Research Report

1.1. Introduction

This field research project is an application of the conceptual framework proposed in the theoretical discussion in this thesis project. The objective of this field research is to study: 1. how the user understands and interacts with an object, which is a hiking backpack in this study; 2. how an object makes sense to the user; and 3. how a designer gathers and analyses the factors involved in the roles of an object. This study shows that the hiking backpack, which is a piece of function-oriented equipment, can carry and contribute to meaning through use and other modes of meaning-creating processes. Objects can signify a trip, a friend, or a special experience. They can also develop a “friendship” with the user, (as one user called her backpack her “big friend,”) motivate the user to plan trips, contribute to the user’s outdoors career, or become part of the user’s lifestyle. These are all possible meanings a backpack can bear and generate. The collected data can become an asset that helps the designer understand the roles of the hiking backpack in the area of field research. The gathered information can also help depict the studied backpacks’ life cycles and construct their biographies.

1.1.1. Selecting the Research Subject

The hiking backpack (volume 40 litres and above) is selected as the subject for field research mainly for its richness in meanings:

A blend of tradition and high technology

With the development of new materials and manufacturing processes, a modern hiking backpack (including the internal-frame pack and the external-frame pack) has leapt a large step in technology over the past 30 years. All participants in this field research with backpacking memories in the 1970s mentioned the experience of using the external-frame packs, which were the state-of-the-art during that period. However, to broaden the time scope, carrying objects on shoulders and backs was a traditional means existing throughout human history.

Reversing spatial experience

The backpack reverses the conventional pattern in which objects of daily use are usually scattered around by bringing them into a close space attached to the user, who now carries a space

full of artifacts instead of living in one. Backpack users “live” with their backpacks in remote areas; backpacking changes their spatial perceptions of daily objects and living experiences.

Increasing accessibility to nature

A backpack is a crucial piece of equipment in the wilderness. In the premise of carrying everyday needs on one’s back independently, a backpack directly influences one’s mobility in the natural environment or while travelling.

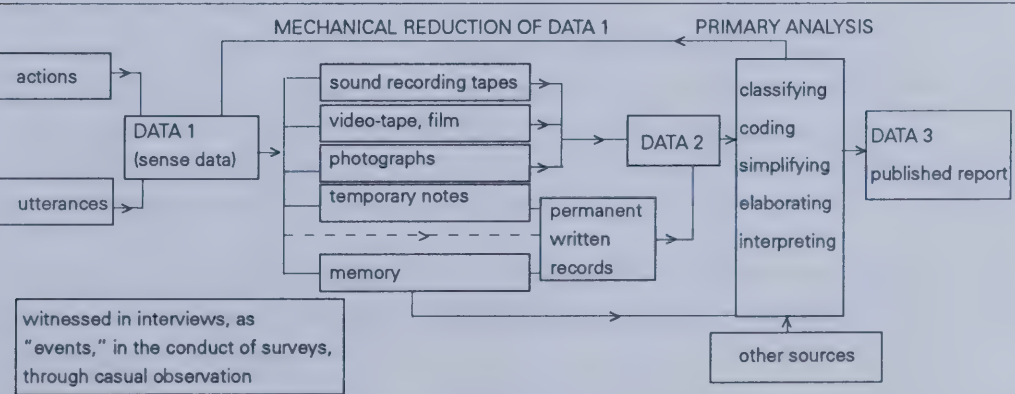
The hiking backpack’s contradictory characteristics: traditional and modern, nature and technology, burden and freedom, to name a few, create an interesting research field for designers to advance further explorations on user-backpack interaction, backpacking experience, user reflections, and design interventions.

1.1.2. Selecting the Research Site

Edmonton City was selected for the research site because of accessibility and convenience. Concerning the nature of the researching subject matter, a specific site is not necessary.

1.1.3. Field Research Design

To study the experience of backpacking, I selected three methods of field research were chosen from various types of qualitative research. Some common types of methods used to produce data in ethnographic research are participant observation, informal interviewing, case studies, long-term research, collecting life stories, and surveys. Before the fieldworker decides to select data-collecting methods and immerses her/himself in the research field, it is important to first look at the process of analysis because the data analysis stages begin from the pre-fieldwork preparation. Other stages of data analysis take place in the structuring of research problems, and in the final presentation of research reports. The following diagram shows the transformation of data (Ellen, 1984, 214).



[Figure 1-1] The transformation of “data” (Ellen, 1984, 214)

The research design and structure of categories generally affect observations and interpretations throughout the data-collecting and analysing transformation, and as a result, the data are the fragments of the phenomena produced while interacting with informants (Ellen, 1984, 214). These selected and socially constructed data reflect researchers' observations, perceptions, and sometimes bias. Therefore, the researcher's considerations and fieldwork restrictions on the field-research design and during the field research should be stated and evaluated.

Considerations of data collecting in this field research:

Collecting data from a designer's point of view

The model of the roles of objects developed in the theoretical discussion serves as a basis for the conceptual framework in this field research. The focuses of the fieldwork are to understand:

1. How do users develop relationships with their backpacks?
2. What are the roles of a backpack, its influences, meanings, and significance in user's daily activities and in backpacking?
3. What are the relationships between backpacks and other items?
4. What are possible design interventions?

Presenting both written and video format report

The diagram of "the transformation of data" (Figure 1-1) shows that, in the primary stage of analysis, data are processed through classifying, coding, simplifying, elaborating and interpreting. These are to ensure the explicit and systematic quality of the published report, and data are usually presented in a written format. However, a researcher can also produce other formats of published report (Data 3) elaborated from Data 1 and Data 2 in order to reduce the interpretations from the observer or the researcher. It is possible for informants to speak for themselves with minimum influence from the data analyser. Max van Manen (1990, 45) writes in *Researching Lived Experience*:

We read theories into everything. And once a theoretical scheme has been brought to life we tend to search for the principles (nomos) that seem to organize the life to which the theory was brought. In our efforts to make sense of our lived experiences with theories and hypothesizing frameworks we are forgetting that it is living human beings who bring schemata and frameworks into being and not the reverse.

Based on such consideration, a video format report is produced in addition to the written report. The collected images and conversations showed in the video reflect participants' direct emotional responses during the interviews.

Multiple data-collecting methods

To best cover the focuses of this fieldwork described previously, three data-collecting methods were selected and evaluated based on their purposes.

Survey method

Purposes (Ellen, 1984, 257-259):

- To map the terrain of the subject matter before entering the analysis and interpretation stages.
- To verify the properties and relations items interplay in the course of the observations and interviews.
- To quantify the elements for higher reliability, comparability and precision in testing theoretical propositions.
- To provide a systematic means of acquiring large amounts of information.

Limitations and Difficulties

- In the same cultural ambience, informants may find survey researchers intimidating or impertinent.
- Surveys concerned with attitudes or perceptions usually call for complicated psychological measurements and scale techniques.
- Surveys are usually time consuming and costly when dealing with a large sample size.

The survey method was used before the interview because the research site, Edmonton City was an urban setting where the survey method was frequently used by fieldworkers since they “most need something specific to ask of informants to ease their early exchange” (Ellen, 1984, 259). The brief survey helped modify questions in the following stage of interview in the fieldwork. This stage was very useful for getting a primary understanding of the participants; it was a useful strategy to combine the quantitative survey with the qualitative survey to ensure the coverage of various dimensions in the total ethnographic picture.

Long interview method

Purposes (McCracken, 1988)

- An instrument for the researcher to capture how the informants see and experience the world.
- It can be carried out in a way that neither the researcher nor the informants make extraordinary sacrifices in time or privacy
- To give the researcher a means of collecting and treating qualitative data so that they may be both abundant and manageable.
- To help the researcher accomplish ethnographic objectives in the face of the difficulties and constraints that pertain in modern North America.

Limitations and Difficulties

- Participation can be time consuming, privacy endangering, and intellectually and emotionally demanding compared to quantitative interviews

There are several interviewing methods related to different research purposes, such as informal interviewing, short interviewing and long interviewing. The long interviewing method was selected in this field research following a pilot study.

The pilot study showed that:

The interviewing time was approximately one hour to one hour and fifteen minutes

It took 10 to 15 minutes to become familiar with the user’s backpacking history and her/his backpacks’ histories, which include backpacks used, bought, borrowed, given away, sold, and stored. In the following 20 to 25 minutes, the user talked about different uses of her/his backpacks, backpacking experiences and other activities involved. For the last 20 to 30 minutes, she/he was encouraged to talk about her/his feelings, emotional attachments, and affects on her/his living style, and on the activities of hiking, backpacking, climbing, and travelling. The participant was asked about the meanings of backpacking and backpacks, and how her/himself and other people see her/him as a backpack user.

One-on-one semi-structured interview with a checklist proved to be an effective method

The pilot study showed that it was not easy for participants to reveal their feelings and attachment to a backpack and talk about in what aspects do they actually “feel” the meanings of their hiking backpacks in their experiences. This may be because they may not be aware of their backpacks most of the time and do not really build any intimate form of relationships with them. It is therefore necessary to guide them to share their thoughts, feelings, and memories about backpacks and backpacking with a semi-structured questionnaire and a checklist.

Private camera conversation method

Purposes (Kemp and Hartevelt,1994, 84-85)

- To obtain responses from informants without restrictions on socially acceptable answers and the questions being asked.
- To obtain more personal, rich, creative and valid answers.
- To recruit participants from large public more easily.

Limitations and Difficulties

It is difficult for some participants to talk about emotional issues in front of the camera just by themselves. Therefore, proper instructions are very important.

Private camera conversation involves a closed cabin where participants sit in and talk to the camera in private. There is no interviewer and no questions are asked. Participants are free to express ideas and opinions about backpacks, and they themselves decide when the session would start and when it would end.

According to Hans Kemp and Mark Hartevelt (1994, 84), it is difficult for users to put their emotional responses to the product into words and to "talk about products in the same way they talk about friends and relatives." As a result, the method of private camera conversation was implemented in their customer ergonomic research. In the research I conducted, this method was used for covering participants' responses more completely in addition to the information obtained from surveys and interviews.

1.2. Research Method

1. Project proposal

The project proposal was submitted to the Department of Art and Design, Ethics Committee.

2. Pilot Study

Two participants were recruited for the pilot study.

3. Participant Recruitment

8 participants, 4 males and 4 females, were recruited in Edmonton City. Their ages ranged from 20~45.

4. Data Collection

Three data collecting methods were used:
1. Survey - written response
2. Semi-structured long interview
3. Private camera conversation

5. Data Processing

- 1. Conversation transcribing
- 2. Data analyzing
- 3. Video editing

6. Reports

- 1. A written report
- 2. A video format report

[Figure 1-2] Field research method

1.2.1. Project Proposal

A preliminary field research proposal was proposed accompanied with the thesis proposal entitled “Studying the Design Interventions on the Role and Meaning of an Object in User Engagement, Using the Hiking Backpack for a Case Study” in October 1998. In January 1999, the field research project entitled “Studying the Meaning of the Hiking Backpack in User Engagement” was submitted to and approved by the Department of Art and Design, Division of Design Studies, Ethics Committee for ethics review (Appendix 3). The field research was conducted between February 3rd, 1999 and March 1st, 1999.

1.2.2. Pilot Study

A pilot study involving two participants, one male and one female, was conducted prior to the field study. The pilot study showed that, as stated in the introduction to this chapter, the interviewing time was approximately one hour to one hour and fifteen minutes. The one-on-one semi-structured interview with a checklist proved to be an effective method. The planned survey form, semi-structured interviewing questions with a checklist, and time control were adjusted accordingly.

1.2.3. Participant Recruitment

Participants were recruited in Edmonton City by various means. The target participants were backpack users with different levels of backpacking experiences and backpack-involved activities. Heavy users were welcome but experts were not the focus users. Posters were put up at places where backpack users would come across such as backpacking equipment stores, outdoors centres, and outdoors clubs. Also, an email message was sent to members of the U. of A. Outdoors Club. Campus residents were also contacted to ensure balanced sampling on different experience levels, for participants recruited from the former means may have been more experienced at backpacking activities than regular users.

In this project, eight participants were recruited, four female and four male, and their ages ranged from 20 to 45. The users’ backpacking experiences ranged from four days a year to 100 days a year that they used backpacks for hiking in the past five years. The composition of sample users is satisfactory in terms of diversity in age, gender, and backpacking experience. Participants were voluntary and unpaid.

1.2.4. Data Collection

1. Survey	2. Interview	3. Private Camera Conversation
Written response to a questionnaire composed of 9 questions	One-on-one conversation based on semi-structured questions and a checklist	Informants speak to a video camera in private by themselves without questions asked
[5 to 10 minutes]	[45 minutes to 1 hour]	[5 to 10 minutes]

Survey

Before the survey, participants were told about the purpose of the research, their rights, and the interviewing process, and were asked to sign consent forms. All eight participants agreed to be video-recorded during the interview. While participants filled out the survey, that time was used to set up the equipment, which includes a digital video camera with a tripod and an audio tape recorder.

The survey questionnaire was structured into three sections: personal information, average frequency and days of using backpacks, and their motivation and reasons for using backpacks. For each interview, the following questions were modified according to the information provided by participants in the survey.

Interview

The questions for the interview were structured as follows:

Structure	Questionnaire/ Checklist
[Question 1-4] This section is focused on obtaining the information about the user's intuitive responses, backpacking history, descriptions about the backpacks and their backpacks' life stories.	1. What comes to mind when you think about backpacks and backpacking? 2. Could you describe some of your backpacks, as if I were someone who had never seen them? 3. Could you tell me how do you acquire your backpacks? 4. Could you tell me how often do you change your backpacks?
[Question 5-8] This section is designed to gather information about the user's subjective perceptions, judgements, attachments, and engagements on backpacks and backpacking.	5. Could you describe how you use your backpacks? 6. What are the things about your backpack or experiences related to it which are special for you? And why? 7. What's in your mind and how do you feel when you are backpacking? 8. What would it mean for you not to have a backpack?
[Question 9-12] This section is designed to find out how the user her/himself and other people view her/him as a backpack user, what her/his next steps on backpacking activities and career are, and what her/his thoughts and philosophy behind her/his stories and lifestyle are.	9. Have you talked about backpacks with your friends? Please describe. 10. Are you planning to get a new backpack - and why? 11. If you are going to get a new backpack, how do you choose it? 12. Would you say you are a backpacker - and why?

General guidelines for interviewing:

1. Ask what had changed after using a particular backpack, after starting to use backpacks, losing or buying backpacks, taking any backpacking-related courses or training, or some memorable backpacking trips.
2. Refrain from implying, assuming, over-interpreting, or improperly guiding the informant during the conversation. Allow participants to speak with their own words.
3. Try to encourage participants to recall or imagine some situations that they had or had not experienced, such as hiking abroad, encountering danger, losing backpacks, travelling and planning trips.
4. Try to clarify which backpack was involved in a particular event that they talk about. Also, ask about the life story of every backpack they have used, borrowed, bought, given, or rented.

Private camera conversation

After the interview, participants were invited to participate in the session of private camera conversation, which was optional. Only one participant, who spent the least interviewing time among participants, joined this session. The reasons given by other participants for not participating in the session were that they felt they had given all the information about backpacks or backpacking during the interview session; backpacks were not something they felt or thought much about that they felt like talking beyond questions asked, or they didn't have time. Feeling uncomfortable speaking to a camera alone was not mentioned as a reason to the opt out.

1.2.5. Data Processing

Please refer to [1.4.]: Data Analysis (p. 114).

1.2.6. Reports

The written report is presented here and the recorded interviewing conversations and images were edited to a 15-minute video (Appendix 4).

4.3. Participant Profile

A. Ann*, female, age 18-25

*participants' real names have been changed

Backpacking Experience

How often have you used backpacks in the past 5 years, on average?

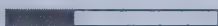
for hiking for other activities



0 2 4 times a year

How many days a year have you used backpacks in the past 5 years, on average?

for hiking for other activities

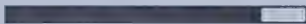


0 14 40 days a year

Importance of the Backpack

How important are the backpacks in your life?

not important very important



0 6 7

Biographical Brief of Backpacks Used

Backpacks (40 litres and above) used: 2

A traveling backpack

Borrowed from Ann's father

Used for 6 years, now at her parent's home

An internal-frame pack

Borrowed from her mother

Used for 4 years, now at her parent's home

It's like happy. I really like hiking. I don't think about my backpack or conscious of it because I always hike with it. It's part of hiking. Backpacking and hiking mean the same thing to me.

Ann is a university student who came here for study from Victoria. She hiked with her family using her mom's backpack, which is designed for women. She also used her father's travelling backpack, which looks like "a suitcase on your back," as Ann described it. She didn't have her own backpack and wished to buy one, which "has to be very ugly," because she didn't care about how it looks. For her, the most important feature of a backpack is function in terms of efficiency and doing things she wants to. If the backpack makes the experience of hiking less enjoyable, she may blame it for that poor experience.

Most of the time, Ann didn't really think about backpacks. When she went hiking, she didn't really "feel" the backpack even though she knew that it was heavy. She said, "without a backpack, I cannot be there for an extended period of time. So I feel very free and nothing as much." She wanted to have her own backpack so that she "can be free." Backpacks were important to her because backpacking is an efficient way to hike and travel.

B. Bob, male, age 18-25

Backpacking Experience

How often have you used backpacks in the past 5 years, on average?

for hiking



0 3 times a year

How many days a year have you used backpacks in the past 5 years, on average?

for hiking



0 8 days a year

Importance of the Backpack

How important are the backpacks in your life?

not important very important



0 5 7

Biographical Brief of Backpacks Used

Backpacks (40 litres and above) used: 2

An army rack sack

Property of the Canadian army

Bob had used it for 2 years since three years ago

There were at least 5 or 6 name tags on the sack

An internal-frame pack, Serratus

Borrowed from his friend

For me I have never built a relationship with a backpack.

In my life, I only travelled to different places in Canada and the United States, ... I want to experience different cultures, my backpack would be an integral part to that experience. Because everywhere I go, I will bring my backpack with me.

Bob is a student who had been enrolled in the Canadian army three years ago before attending school here. Hiking in the military was very different from recreational hiking. The army rack sack he used was an old external-frame pack, which had been used for more than ten years. It was very durable, functional but not very comfortable. It had many pockets outside, "because you always want to get things quickly in the army," he explained. "So a lot of pockets on the outside are always good." However, this feature is not a main concern for him for a recreational hiking pack because there's no need to be rushed. He borrowed one internal-frame pack from a friend to go to the Rockies last summer. He liked it better because it was waterproof, and he didn't have to put a garbage bag in it as he sometimes did with the army rack sack. The new pack was more comfortable with more padding and was much bigger.

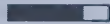
Bob would like to buy a very large travelling backpack for his travelling plans after he graduates. The backpack was important to him because "it just gives you a lot of freedom," he said. "I would not be able to walk that far with my suitcase."

C. Cindy, female, age 18-25

Backpacking Experience

How often have you used backpacks in the past 5 years, on average?

for hiking for other activities



0 6 8 times a year

How many days a year have you used backpacks in the past 5 years, on average?

for hiking for other activities



0 24 40 days a year

Importance of the Backpack

How important are the backpacks in your life?

not important very important



0 7

Biographical Brief of Backpacks Used

Backpacks (40 litres and above) used: 4

An external-frame pack

The first backpack Cindy used at about 12, which was 10 years ago

A 45 litre internal-frame pack

A big backpack

Borrowed from her father

A 60 litre internal-frame pack, Hagloog, made in Sweden*

Cindy's first own backpack, which was a gift from her parents in 1994

Note: * The Backpack used by the user currently

The [backpacks] I used before this one ... I don't think they mean anything to me, really. I just needed something for that trip. This one (Hagloog) means a lot to me, much much more than other ones...

Cindy is a student who came here last year from Sweden. She had travelled in many countries in Europe with her favourite, a Swedish-made backpack, which was a gift from her parents in 1994 and was her first own backpack.

Hiking is her big hobby. She went hiking as much as she could since it means freedom to her. "It is just like a sport," she said, "or just a way of being, I think." She thought that backpacking was the best way to carry things and to travel because she doesn't need to be restricted. "I think that's why I like it most. It is so independent, having everything on your back on your friend's back, that's everything you need in your life." She said:

In a lot of time, I have to have a backpack on my back when I was hiking, because that's the feeling of backpacking... have, ...not too heavy, but a heavy thing on your back. You feel like, ok, now I am going.


She would keep using her Hagloog backpack probably 5 more years or until it fell apart. The backpack is her "big friend." She would continually hike and travel with it because backpacking was the lifestyle she preferred.

D. Don, male, age 26-40

Backpacking Experience

How often have you used backpacks in the past 5 years, on average?


for hiking for other activities



0 1.5 3 times a year

How many days a year have you used backpacks in the past 5 years, on average?

for hiking for other activities




0 12 14 days a year

Importance of the Backpack

How important are the backpacks in your life?

not important very important



0 5 7

Biographical Brief of Backpacks Used

Backpacks (40 litres and above) used: 2

An external-frame pack

A gift from Don's mother

A bright blue pack with an aluminum frame that he used in scouts, 1987

Now it is in the garbage

An internal-frame pack, Sierra Design

A gift from his parents three years ago

Now in his home town, Thunder Bay, Canada

I don't really have anything that is special about my backpack. I had a memory when I was a boy scout, I had that bright blue pack sack, which hurt my back. So that's my memory about it. ... For my other backpack, ... I had a good memory because I was tree planting with it.

When it came to backpacking, Don thought of adventure and also work because he had been tree planting 60 km north of Thunder Bay, Ontario. He liked to go camping because "camping with people there is no rule, we had a tendency to get a little more adventurous," he said. Backpacking for him is to be away from any civilization and to keep himself simple.

Don had one internal-frame pack, which was a gift from his mother. He started to use it in 1987 when he was a scout. Another pack he used was a Sierra Design pack, also a gift from his parents. He used it for work, hiking, camping, and moving. He sometimes put a garbage bag in the pack as a lining when it was raining while tree planting. Finishing a hiking trip is an accomplishment for him. He was looking forward to going on more hikes and hiking to different terrains in different seasons.

E. Elizabeth, female, age 41-45

Backpacking Experience

How often have you used backpacks in the past 5 years, on average?

for hiking



0 4 times a year

How many days a year have you used backpacks in the past 5 years, on average?

for hiking



0 15 days a year

Importance of the Backpack

How important are the backpacks in your life?

not important

very important



0 5 7

Biographical Brief of Backpacks Used

Backpacks (40 litres and above) used: 6

An external-frame pack

A gift from Elizabeth's boyfriend when she went to her first backpacking trip about 20 years ago
It had been used for a period about 10 years, and she still keeps it

An internal-frame pack, Serratus

A pack designed for men
She borrowed it from a friend
She used it once at the West Coast trail
She decided to invest in a good pack after this one, which hurt her arms

A travel pack

It was borrowed from a friend

A travelling pack

Elizabeth bought it

An internal-frame pack, Dark Horse, 75 L extendable to 90 L, made in Calgary*

She spent 3 years studying packs before buying this one
She has used it for 4 years

Note: * The backpack used by the user currently

Well, my first backpacking trip was a pretty exciting experience. So I can tie that pack to the... 'Hey, I went on my first backpacking trip.' So, yes, it would have meanings, that can be one of the reasons why I still have that pack, that was my first trip.

Elizabeth is an energetic lady pursuing her third degree in Education while working at the U. of A. To live a lifestyle she enjoys, she decided not to have a family but to pursue personal development. She said, "I have three different kinds of résumé: one is on education, one is on my hiking and group leading experience, and one is on volunteering." She had been to the Second Camp of Mount Everest, the summit of Kiromigiro in South America, and hiked more than 100 km of Canadian Rockies trails. She lead camps during the summer, went to school in the winter, and worked throughout the year.

Her first backpack, an external-frame pack, was a gift from her boyfriend. Then she went on her first backpacking trip about 20 years ago. She still has it. "To laugh at myself," she said, "and all

the mistakes I had with the pack ... learning from my experience." "It looks funny, you have things dangling all over the place, ... we were stopped over and over, like backpacking panhandlers or something." After using the pack, she borrowed her friend's backpack, a Serratus, on the West Coast trail. The pack was a determining factor for her to invest in a good quality pack because the Serratus pack, which is designed for men, hurt her arms so much. She spent three years studying backpacks before buying her pack that she is using now. It is called the "Dark Horse," manufactured in Calgary. "I had people stopping and complimenting me on this pack. They stopped and looked at me and said: 'This is equivalent to the North Face pack.'" Elizabeth recalled proudly.

To have a good quality backpack ... it motivates me to plan trips. To use it, instead of sitting there like a trunk ... stored away, and forget about it. Okay, I got a good backpack, I want to use it!

Elizabeth bought a black gear jammer for the Dark Horse pack because people commented that the pack looks big because of its bright colour. "So I got it something black, that was some sort of camouflaging some of the bulky looking stuff, and again sort of like a gear jammer as it is supposed to do." She also made a rain cover for it. The pack was well cherished and maintained, and she wouldn't use it for laundry or lend it out. "Because it is part of me, it is conformed to my body!" She explained.

Backpacking Experience

Activity	Frequency (times a year)
for hiking	35
for other activities	40

Activity	Days a Year
for hiking	80
for other activities	100

Note: * The backpacks used by the user currently

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"A big thing to me of a backpack is fit," Frank said,

A lot of people are more concerned about the sort of features inside of the backpack, ... like this one I can quickly undo these clips, and I can open up the zipper here and get into the bottom compartment, which is a nice feature. It doesn't mean a lot to me. ... Because when I start to carry my backpack, I don't stop until the end of the day, so I don't need to take stuff out.

Without backpacks, for Frank it means restrictions to where he wants to go. "I couldn't see myself using suitcases," he said, "all my clothes are T-shirts and jeans, travelling clothing made by the North Face or Royal Robin... they don't wrinkle as quickly and are very durable." Backpacks were part of his lifestyle, and because his needs had changed over the years, he had used many backpacks while trying to find a better, a more comfortable, and a more suitable backpack which can help him accomplish his goals and suit his ways of living.

G. Gail, female, age 18-25

Backpacking Experience

How often have you used backpacks in the past 5 years, on average?

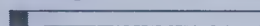
for hiking for other activities



0 2.5 4 times a year

How many days a year have you used backpacks in the past 5 years, on average?

for hiking for other activities



0 4 48 days a year

Importance of the Backpack

How important are the backpacks in your life?

not important very important



0 6 7

Biographical Brief of Backpacks Used

Backpacks (40 litres and above) used: 3

An internal-frame pack

Gail's first backpack

She bought it from Sport Check 5 or 6 years ago

She used it 3-4 times and the zippers and straps broke; she took it back for refund

An internal-frame pack

She borrowed from her step-father, only used it several times

An 80 to 90 L internal-frame pack, Jack Wolfskin*

She bought it as used two years ago

Note: * The Backpack used by the user currently

[My backpack] reminds me of places I have been. It makes me think of, like, ya! I remember that trip when I did that.

Gail is a student who joined an outdoors club. About 5 or 6 years ago, she started to go hiking and bought a low priced pack, which broke after she used it for 3 or 4 months; she took it back and got her refund. Now Gail is using a Jack Wolfskin pack which she bought as used two years ago. "I like my backpack," she said, "I like having my own gear because ... otherwise you're really afraid to really use it." She uses her pack for hiking, travelling, moving, and sometimes for laundry. When she used it for laundry, she thinks people probably see her differently. "They probably think ... you backpack more," Gail said, "I like it because people get to see a part of me, like they get to see that I like backpacking, so maybe they get to know more about me or something."

Gail put a Canada flag, patches of places she had been, and a string of beads on her pack. She thought the string of beads was a nice decoration, which dressed her backpack up a little. "It's unique, makes it mine," she explained. If she keeps her backpack after getting a new one, she will probably leave those patches on it. "Because those are part of my backpack. If I have been there with my backpack, they should stay there, I think. It makes sense to me just keeping them on there."

She had done tree planting during the summer for the last three years. "Because it gets you a lot of money. There were a lot of cool people, and we lived in camp. It's a good life and you get in good shape ... I think if people are tree planters, they definitely can do backpacking."

for hiking for other act

for hiking	for other activities
<p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>4. _____</p> <p>5. _____</p> <p>6. _____</p> <p>7. _____</p> <p>8. _____</p> <p>9. _____</p> <p>10. _____</p>	<p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>4. _____</p> <p>5. _____</p> <p>6. _____</p> <p>7. _____</p> <p>8. _____</p> <p>9. _____</p> <p>10. _____</p>



This is his major step into a high quality

He used it for at least 5 years, after that

This one was going back to a step smaller

It is designed a little more for ski touring

out about 3 years ago

n 80-85 L internal-frame pack, Arc'teryx Bora 80*

• whole career of hiking backpacking

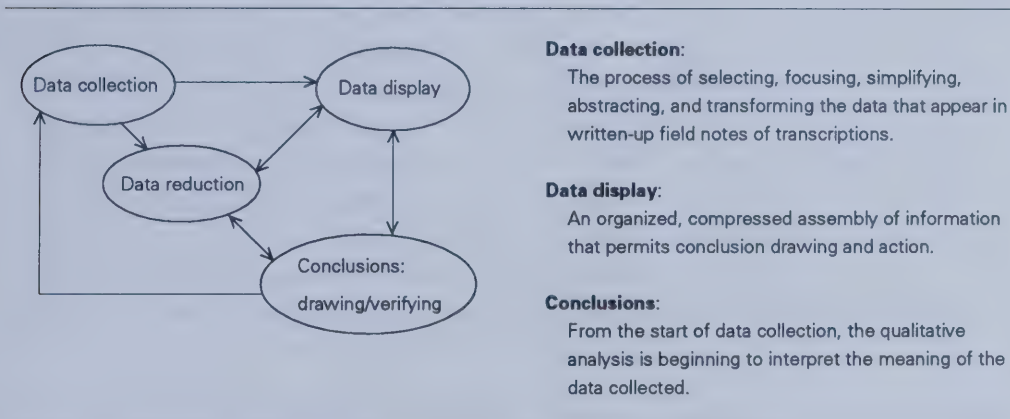
using. "I really like it. The pack performed very well, it was not sloppy ... when I have to do technical climbs or descents. It has everything I want it to have which is a good fit."

At the end of the interview, Harlem talked about how society views backcountry and avalanche related accidents. "I think it's timing and knowledge. We were out of certain areas at a certain time, but I honestly think that the most hazardous part of a trip is driving to it. While I am in that area I can read the environment and make decisions," he said, "we hear a lot in the media about avalanche fatalities and backcountry fatalities. It is socially unacceptable to be involved in incidents that way yet. We as society probably accept those vehicle fatalities. It is part of our lives now."

1.4. Analysis

1.4.1. Data Reduction and Display

The collected data was processed and analysed based on the following diagram (Figure 1-3). There are four stages of data analysis: data collection, data reduction, data display, and conclusions. The major source of the data displayed here came from the interviews with the participants. The transcripts of the conversations with eight participants yielded approximately 31000 words (Appendix 2). They were coded, categorized, and displayed selectively. This diagram is modified from *Qualitative Data Analysis* (Miles and Huberman, 1994).



[Figure 1-3] Components of data analysis: an interactive model

Data reduction

Transcripts were categorized and coded into the following 10 categories:

- Code 1. Backpacks and users
- Code 2. Backpacks and users' emotion, perception, and affection
- Code 3. Backpacks and users' bodies
- Code 4. Backpacks and other objects
- Code 5. Backpacks and technology, technical supports
- Code 6. Backpacks and people in society
- Code 7. Backpacks and the environment
- Code 8. Backpacks and hiking, camping, climbing, skiing, backcountry activities
- Code 9. Backpacks and other activities
- Code 10. Lifestyles, backpack related experience

General guidelines for transcript coding:

1. Omit obscure issues

Omit obscure issues that appear without supporting contexts. For instance, a participant said: "It would be nice if it has aesthetic qualities." Without a context, we do not know why she

was concerned about a backpack's aesthetic quality. The reason may be that she cared about other people's comments or she had certain preference. We also do not know how important the aesthetic quality was to her.

2. Code issues based on motivation and reasons

For instance, "I remember people commented on how big the pack looks, and it looks like a big pack because of its bright colour. But I still love the colour, it's a great colour. So I got it something black, that was some sort of camouflaging some of the bulky looking stuff, and again sort of like a gear jammer, as it is supposed to do. And then it's good for dropping in things, because it is a mesh." The transcript can be divided into four issues:

1. "People commented on how big the pack look," code 6
2. "I still love the colour, it's a great colour," code 2
3. "I got it something black ... camouflaging some of the bulky looking stuff," code 4
4. "Again sort of like a gear jammer, as it is supposed to do," code 4, 8

The roles of backpacks and the gear jammer differ in relation to opinions of other people in society, the user's perception, the camouflaging effect of the gear jammer to the backpack, and the gear jammer as a mesh pocket containing other objects used in backpacking. Therefore, the user's backpack becomes 1. a part of her body image viewed by members of society; 2. an object with colour favoured by her; 3. a backpack looks less bulky because of the gear jammer; and 4. a container for backpacking stuff.

3. Issues that are not directly related to the backpack itself but to the backpacking experience as a whole and the backpacking related lifestyles are categorized into Code 10.

Data display

At the data reduction and display stage, focuses of this fieldwork, as discussed in [4.1.], serve as guidelines for data selection, construction, and reduction. There are four major focuses:

1. How do users develop relationships with their backpacks?
2. What are the roles of a backpack, its influences, meanings, and significance in user's daily activities and in backpacking?
3. What are the relationship between backpacks and other items?
4. What are possible design interventions?

The concern here is more with: the roles of the objects than activities; the meanings attached to the objects than the meanings attached to other contributors; and unintended functions, effects, attachments, and usage of the object than the intended settings. For example, "this backpack means a lot to me, it just means I can climb harder..." I selected this phrase for data display because: 1. It is the backpack that enables the user to climb harder, thus it means something to him. This sentence focuses on the roles of the object (a backpack) rather than on the activity

(climbing). 2. The backpack means a lot to the user; it is the object (a backpack) that contributes the meanings. 3. To enable users to climb harder may or may not be the intended purpose of the backpack designer. It might originally have been designed for more comfortable and efficient climb. The hard climbing might be the byproduct of the backpack's quality of comfort and efficiency.

Code 1: Backpacks and users

Note: A- Ann, B- Bob, C- Cindy, D- Don, E- Elizabeth, F- Frank, G- Gail, H- Harlem

1. H:

<Issue> I don't hang onto them if I am upgrading to a pack, I sell my old ones...

<Context> They all had their stages in a whole career of hiking backpacking continually, they all got me to some special places. The backpack is the byproduct of the trip, and the trip is the byproduct of the pack.

<Roles of the backpack(s)> Objects which have their stages of contributions to accomplish the user's whole career of hiking and backpacking

2. H:

<Issue> It's technology on your back to get you to nature.

<Context> It's a paradox: going back to nature with technology on your back.

<Roles of the backpack(s)> A product of technology helping the user get to nature

3. D:

<Issue> I had a memory when I was a boy scout. I had that bright blue packsack, which hurt my back.

<Context> It's kind of too bright ... I think it was for kids, I had it since I was a boy scout.

<Roles of the backpack(s)> The backpack and its colour become part of the user's childhood memory

4. E:

<Issue> The backpack means motivation, it motivates me to plan trips. To use it, instead of sitting there ... like a trunk, I got a good backpack, and I want to use it.

<Context> I tie the backpack into pleasurable experience. To know that I have that equipment, I don't have to worry about renting it, things don't fit properly, I have a comfortable pack, I can just go on a trip.

<Roles of the backpack(s)> A motivation encourages the user to plan trips and to hike

5. C:

<Issue> I like to travel with my backpack, it's my big friend.

<Context> I have used my backpack so much, I think I have used it forever. I hate those suitcases. This is a good thing because I can always carry it by myself.

<Roles of the backpack(s)> A companion when travelling

6. E:

<Issue> I keep my first backpack to laugh at myself and all the mistakes I had with that pack. I tie that pack to my first trip. It would have meanings. That can be one reason why I still keep that pack.

<Context> I went on my first backpacking trip with my boyfriend. The backpack looks funny, we were stopped over and over because things were dangling all over the place. We were like backcountry panhandlers or something.

<Roles of the backpack(s)> A representation for the user's backpacking experience and mistakes made and a memorable object for her first hiking trip

7. E:

<Issue> I got the gear guide, and researched on the internet for packs. This is my hobby, this is fun to me, and this is no hard work.

<Context> I am upgrading my knowledge of packs right now, in case people ask me. I do it for other people, because I already have stuff.

<Roles of the backpack(s)> A subject matter for hobby and fun

8. E:

<Issue> About my pack? 'My' pack, ownership, notice that? I won't lend this pack out, it's conformed to my body, it's part of me.

<Context> I will lend other equipment out, but not my backpack. I believe it's conformed to my body. The hip belt and

the aluminum stay are formed to my body.

<Roles of the backpack(s)> A belonging and a part of the user's body

9. F:

<Issue> I call myself more of an ice climber who needs a backpack. It carries my gear in.

<Context> I am not usually thinking about how I feel or if the pack is fitting exactly perfectly. Usually the pack is on my back and I am trying to get to the bottom of my climb as quickly as possible.

<Roles of the backpack(s)> A container for the user's climbing gear

10. B:

<Issue> It gives you a lot of freedom. For me that's the importance of the backpack.

<Context> I wouldn't be able to walk that far with my suitcases, I need a car.

<Roles of the backpack(s)> Freedom contributor

11. C:

<Issue> My backpack reminds me places I have been. It makes me think of like, ya, I remember that trip when I did that.

<Roles of the backpack(s)> An object that reminds the users the trip it was used for

Code 2: Backpacks and users' feeling, perceptions, emotions, and affections

1. A:

<Issue> Personally I don't feel the backpack, I know it's heavy, but I couldn't be there for an extended period of time if I didn't have a backpack. So I feel very free and nothing as much.

<Context> If I didn't have a backpack, it would be terrible and unpleasant. I could not be free that way.

<Roles of the backpack(s)> Freedom contributor

2. C:

<Issue> It makes me feel good to have my own backpack.

<Context> I like my backpack. Sometimes my friend has some really good stuff, too. But for the most part, like my backpack has adjusted for me, so ... I like it, using mine.

<Roles of the backpack(s)> A cherished belonging

3. E:

<Issue> In the first couple of days backpacks are heavy. It feels very heavy. But about the third, fourth day of the trip, the pack becomes a very real part of you; you don't seem to notice the weight as much.

<Context> My backpack is comfortable.

<Roles of the backpack(s)> A heavy object and a part of the user's body

4. C:

<Issue> I cannot forget that I have a backpack and I will get used to the weight. In a lot of time, I have to have a backpack on my back because that's the feeling of backpacking.

<Context> To have a ... not too heavy, but a heavy thing on your back, you feel like, ok, now I am going!

<Roles of the backpack(s)> The weight of the backpack is part of the backpacking experience.

Code 3: Backpacks and users' bodies

1. G:

<Issue> I like the weight to be distributed evenly, I hate when straps cut into my shoulders. Sometimes a backpack ... if you sweat, it just sticks to you. Sometimes it doesn't stick right on your back.

<Context> I don't like to feel it's thoroughly out of balance, I like it to be tight and on me.

<Roles of the backpack(s)> An object sticks on the user's back

2. E:

<Issue> My Dark Horse pack is designed for women. It has lots of padding, and has totally adjustable straps everywhere. The aluminum stay has formed to my body.

<Context> I was spending three years studying packs before I bought this. I want something totally adjustable and suited to my female body.

<Roles of the backpack(s)> A pack designed for female body

3. F:

<Issue> When I bought my North Face pack, the store changed the shoulder straps and hip belts based on my body size.

It is designed to carry a lot more weight. When the fully loaded pack is on my back, I can carry it, but I can't put it on my back by myself.

<Context> The man's shoulder straps are cut completely straight; with the women's, they usually come down the curve to it.

<Roles of the backpack(s)> A pack with shoulder straps and hip belts designed for a man and to carry much weight

4. B:

<Issue> I like using the internal-frame one; it's more comfortable than my army rack sack. I felt I could carry more weight on my back.

<Context> I am not sure that it was because of its internal-frame design or because it is a nicer backpack. I am not sure why I can carry more weight on that one.

<Roles of the backpack(s)> A comfortable pack enables the user to carry more weight

5. H:

<Issue> I like this pack because even if it has a hundred pounds of weight in it and it's heavy, when it's on my back, I don't feel it that much.

<Context> Backpack manufacturers' number one goal is for people not to notice or feel the backpack on your backs. For other packs, if I had a hundred pounds of weight in it, it cannot be carried. For this one, the weight is distributed so well that I can carry it because all the weights are closer to my natural centre of gravity.

<Roles of the backpack(s)> A pack makes the user physically feel less of it

Code 4: Backpacks and other objects

1. H:

<Issue> I carry Canon Elie II camera on my ski touring, it is pretty light for that style of cameras, but it's just bulk. It sits on my front and it gets warm. And sometimes you're doing technical stuff, you can't see your feet. I also carry an adapter on my ski pole, so it serves as a monopod.

<Context> So sometimes I put the camera on the top of my pack, which has a floating top. It just sits between the floating top and the pack. The monopod is not as good as a tripod, but I don't want to carry a tripod, it's a trade-off.

<Roles of the backpack(s)> An adjustable container for photographic needs

2. E:

<Issue> I got a black gear jammer on my bright colour pack, so my pack looks less bulky. The gear jammer is good for dropping things, because it's mesh.

<Context> I remember people commented on how the pack looks. And it looks like a big pack because it's bright colour; so I got it something black.

<The roles of the backpack(s)> A less bulky looking pack with a black gear jammer

<The roles of the gear jammer> A black object that camouflages the bulky look of the backpack, and a functional mesh container to put things in

3. F:

<Issue> I put an add-on from my Khamsin 50 to the Solomon pack. It doesn't fit perfectly, but it does fit close enough to attach to the same point. So I can carry on my ice climbing equipment on this one better. I have also taken straps to go from the side, so in the summer time I can carry stuff on the side here. On trips I want to be lighter, I will take this off.

<Context> I am not a sewer, so I can't sew anything onto my packs, but I have made some kinds of modifications to it. It's not a structural change of anything like that.

<The roles of the backpack(s)> A pack with adjustable and interchangeable parts according to the user's climbing needs

4. C:

<Issue> I put a patch of my old university in Sweden on my Hagloog pack

<Context> Because it really shows where I was active my life ... and it also reminds me of my old university back home.

<The roles of the backpack(s)> A backpack with a patch on it

<The roles of the patch> A symbol of where the user has been active in her life and a memorable object of her university back home

5. G:

<Issue> I put patches on my backpack, a Canada flag or patches of places I have been. I also put a string of beads on it.

<Context> The string of beads is a nice decoration, it can dress my pack up a little, makes it mine. It is unique. And for the Canada flag, if I go travelling, people will know I am from Canada, maybe that will give them a reason to talk to me.

<The roles of the backpack(s)> A backpack with unique decorations that show the user's ownership
<The roles of the patches and decorations> Symbols of the user's ownership, and also for other people to know about the user

Code 5: Backpacks and technology

1. E:

<Issue> The changes for me over the last 20 years were the comfort in backpacks, not hiking in jeans, the clothing, and rain gear, those sorts of things. You have the right equipment to make your trip more comfortable.

<Context> If I buy another pack, I would go for that ultra light material now, the micro fibre. I think it is pushed to go lighter.

<The roles of the backpack(s)> A piece of equipment implemented with new material and technology that can make the user's trip more comfortable

2. H:

<Issue> It is kind of going full circle around, from very simple to getting into a little more technology. A pack actually is getting a little simpler, where technology has been invested in suspension system, hip system, the whole fit, rather than all the belt systems were on the pack. It has been getting a little bit longer now, starting to take less gear than previously, and the weight is less. I kind of have a little bit experience about that.

<Context> I think it's just the technology that's being injected into the packs these days, in terms of types of foams that they are using. They are lighter, have more memory, don't pack out; and also the whole geometry of the pack and how it sits on your body. It has taken me extra number of years to find out the pack that I really like and that fits really well, which is the Arc'teryx; and I am prepared to pay that.

<The roles of the backpack(s)> A pack of high-technology design

Code 6: Backpacks and people in society

1. G:

<Issue> Sometimes I use my backpack for laundry, people will just say "she goes backpacking or something..." I like it because people get to see a part of me, maybe they get to know more about me or something.

<The roles of the backpack(s)> A representation reflects a part of the user

2. H:

<Issue> The company on the trip is the social aspect of it, which can be important, but I go along on the day trip as well.

<Context> More often it's with a group of friends; it's a lot of fun.

<The role of the backpacking trip> Sometimes it has a social aspect of use when the user hikes with friends

3. C:

<Issue> We talk about different kinds of backpacks. You always check your friends' backpack out.

<Context> When you go hiking, people look at each other's backpack: how much is it? what's the brand name? where did you buy it?...

<The roles of the backpack(s)> A subject matter for talking and looking at

4. G:

<Issue> I started backpacking with my family, and then just started to go with friends and the outdoors club now.

<Context> I used my stepfather's pack when I went camping with my family

<The roles of the backpack(s)> An object shared in a family and used for backpacking with friends

5. C:

<Issue> My Hagloog pack is a gift. I got it from my mom and dad because I have been using my parent's backpacks before I really had my own.

<Context> It is my first own backpack

<The roles of the backpack(s)> A gift from the user's parent

Code. 7: Backpacks and the environment

1. G:

<Issue> Sometimes I put all my stuff inside a garbage bag and put it in my pack, or sometimes I just put a garbage bag on top of it when it is raining.

<Context> My pack is water resistant, but that's not good enough for pouring rains.

<The roles of the backpack(s)> A container with a garbage-bag lining protecting stuff inside from rain

2. G:

<Issue> I don't put the water bottle next to my back because it gets hot. I put the water on top or in the middle surrounding with stuff, so it is sheltered from the sun.

<The roles of the backpack(s)> A container that shelters the water bottle from the sun

Code 8: Backpacks and hiking, camping, climbing, skiing, backcountry activities

1. H:

<Issue> My smallest backpack, Borea, is designed a little more for ski touring.

<Context> It has a shovel pocket, first aid or repairing kit pouch, and things I can keep separate but still access very quickly.

<The roles of the backpack(s)> A backpack designed for ski touring

2. F:

<Issue> I bought my new Solomon pack just for function. It is designed for climbing, and it means a lot to me, it just means I can climb harder.

<Context> It is part of climbing to have something haggling off your back, for my Solomon pack, I don't have to fight with a backpack that's not designed for it.

<The roles of the backpack(s)> A backpack designed for climbing so that the user can climb harder

3. F:

<Issue> I don't have a specific feeling on the backpack, but it is still very very important to me. The backpack would dramatically affect my climbing and it can also affect my safety if I am not using a proper backpack.

<Context> A few times I had it where the side straps had got stuck on a rock as I was climbing, so I had to literally hang by one arm and pull that through. It's a little bit dangerous and taking me away from my concentration of climbing. I have had it too where with my older backpack, I was ice climbing and I couldn't look up to get the proper sight of the climb. It just encouraged me to get a pack with the features that I want so I feel it less.

<The roles of the backpack(s)> A crucial piece of equipment that can affect the user's safety during climbing

4. A:

<Issue> It's like happy. I really like hiking, I don't think about my backpack or conscious of it because I always hike with it.

<Context> My backpack is part of hiking, backpacking and hiking mean the same thing to me.

<The roles of the backpack(s)> A part of hiking

5. G:

<Issue> Sometimes it's fun to live with your backpack. When you go backpacking, all you have is your backpack, and then next day you can get going again.

<Context> If I lost my backpack I would be mad because all my stuff would be in there.

<The roles of the backpack(s)> A container for everything that the user can live with during backpacking

6. E:

<Issue> If I lose this backpack when I am hiking, then it's chance to buy a lighter one. And that's why I want to learn more about wilderness skills, such as shelter building and rescue if something bad really happened.

<Context> You never travel or go anywhere worrying about losing things, they are replaceable, you should never get that attached with things.

<The roles of the backpack(s)> An object that's replaceable

7. B:

<Issue> The army rack sack has lots of pockets on the outside because you always want to get things quickly in the army.

<Context> It is not rushed when I used my friend's pack hiking in Jasper.

<The roles of the backpack(s)> The army rack sack is designed for quick access

Code 9: Backpacks and other activities

1. E:

<Issue> I wouldn't use my 360-dollar pack for laundry or moving.

<Context> I believe in buying quality things and making them last for a long period of time.

<The roles of the backpack(s)> A backpack used only for its designed purposes

2. G:

<Issue> I don't have any problem using my backpack for laundry, I also use it for moving, grocery shopping, and travelling.

<Context> It makes me feel good when I am actually getting use of it.

<The roles of the backpack(s)> A backpack used for laundry, moving, grocery shopping, and travelling

3. C:

<Issue> My family had an external-frame pack, which you can use for rescuing people and carrying things.

<Context> You can use it for a lot of things.

<The roles of the backpack(s)> A pack designed for carrying things and rescuing

4. H:

<Issue> After I upgraded to a pack, I used my old pack as a cargo pack. I used it when I had to do a lot of trips elsewhere and I could carry extra gear on the plane.

<Context> I would just load it up and then ship it.

<The roles of the backpack(s)> A cargo pack

Code 10: Lifestyles, backpack related experience

1. H:

<Issue> I like ski touring. In the summer if you walk off the trail and you may impact the ground when you stay for a long time. But for ski tracking, it just gets melted and it's gone.

<Context> It is not one of the reasons why I prefer ski trips, I just really like skiing. Sliding on snow is so much fun.

<The roles of backpacking> Ski touring has less impact on the environment

2. H:

<Issue> Backpacking allows me to get out of the mainstream, the urban life. However, there's more people that want to get into the backcountry, and that's kind of the mainstream these days too. It's a paradox.

<Context> When I get into the backcountry, I am out, relaxing, and I can do what I prefer to do.

<The roles of backpacking> Backpacking allows the user to get into the backcountry and get out of the urban life.

3. C:

<Issue> Backpacking gives me an opportunity to get outside. My parents were out hiking and camping, then I hiked with friends, and I joined the scouts when I was 12. When you grew up doing things, sometimes you drop them, sometimes it grows bigger and bigger. And then you get independent; you can decide wherever you want to go. Then it really shows that you like something.

<Context> It's just like a sport, or just a way of being.

<The roles of backpacking> Backpacking is an activity with which the user grew up. Now it is a way of being to the user.

4. C:

<Issue> My backpack makes me to be able to travel more. It gives me an opportunity to be able to hike.

<Context> I guess some people don't realize that it's good to have a backpack. They have mountains of things on their carts. Then they see me running with my backpack, I am all sweating and my pack is heavy. They look at me and say: "Oh, poor girl!" I don't care! It's the best way to carry things wherever I go.

<The roles of the backpack(s)> The backpack gives the user an opportunity to hike and travel in the way she prefers.

5. B:

<Issue> I never had that need to use a backpack before, but now I go hiking and travelling on my own, so my backpack would carry everything I need. I want to experience different cultures; my backpack would be an integral part to that experience.

<Context> Before, I used suitcases; I wouldn't be able to walk that far with my suitcases. If I only carry a small pack, it restrict where I want to go. So everywhere I go, I will bring my backpack with me.

<The roles of the backpack(s)> The backpack is an integral part of the user's travelling experience

6. H:

<Issue> I am a backcountry user. A backpacker ... I don't even know what that is. I am just a user.

<Context> It is great to be a backpack user; it gets me into some very special places.

<The roles of the backpacker> The user defines himself as a backpack user, not a backpacker, which he cannot define.

7. A:

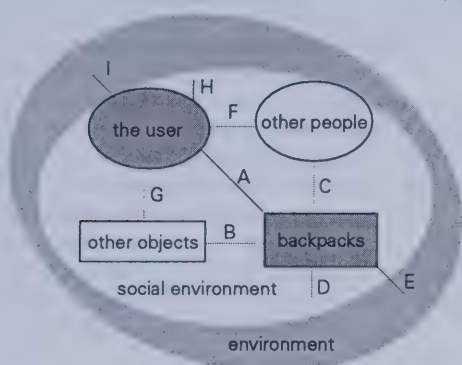
<Issue> I am a backpacker because I go backpacking.

<Context> If you go backpacking on your own choice, I think you are a backpacker. That's the definition of it. But maybe people's definitions are different.

<The roles of the backpacker> The user defines herself as a backpacker because she goes backpacking.

1.4.2. Themes and the Roles of Backpacks

The interactive model of backpacks and the user



Bond A: The user and the backpacks

Bond B: Backpacks and other objects

Bond C: Backpacks and other people

Bond D: Backpacks and the social environment

Bond E: Backpacks and the environment

Bond F: The user and other people

Bond G: The user and other objects

Bond H: The user and the social environment

Bond I: The user and the environment

[Figure 1-4] The interactive model of backpacks and the user

As stated previously, one of the focuses of the field research is to understand the operating system of design interventions. From this diagram (Figure 1-4), we can notice that there are three possible approaches to intervene in the "Bonds" (Bond A, B, ..., I) or the relationships among the user, the backpacks, other people, other objects and the environment: 1. intervene in the backpack design; 2. intervene in the environment; and 3. intervene in the user behaviour. Applying any of the above means will result in changes on roles of the backpack. For instance, if there is a hiking backpack company that decides to promote their backpacks as part to the user's fashion statement, the company can: 1. design fashionable backpacks; 2. create a fashion trend in the market; and/or 3. promote the notion of using fashionable backpacks as part of the user's body image. If the promotion succeeds, for some users the roles of the backpack will be altered or will include a fashion aspect.

In this project, we will examine the roles of backpacks in relation to the users, other people, other objects, and the social and natural environments. These roles are categorized into nine themes, which are displayed as follows.

Data display: Themes and the roles of backpacks

In this session, data are displayed by different themes with a list of the roles of backpacks from [1.4.1.]: Data Reduction and Display, with corresponding bonds shown in Figure 1-4: The interactive model of backpacks and the user. The item code (e.g. 1-1) represents the original issue displayed in Data Reduction and Display (p.114-120) accordingly (e.g. 1-1 represents Code 1, list 1).

Theme 1: The hiking backpack is part of the user's backpacking experience

The roles of the backpacks:

Bond A, H: 1-5 A company when travelling

Bond A, H, I: 2-4 The weight of the backpack is part of the backpacking experience

Bond A: 3-4 A comfortable pack enables the user to carry more weight

Bond A: 3-5 A pack makes the user physically feel less of it

Bond A, B, E: 8-1 A backpack designed for ski touring

Bond A, B, E, I, G: 8-2 A backpack designed for climbing so that the user can climb harder

Bond A, E, I: 8-3 A crucial piece of equipment that can affect the user's safety during climbing

Bond A, I, D: 1-2 A product of technology helping the user get to nature

Bond A, G, B, I: 8-5 A container for everything that the user can live with during backpacking

Bond A: 8-6 An object that is replaceable

Bond A, 8-4 A part of hiking

Bond A, H, I: 10-5 An integral part of the user's travelling experience

Bond A, B, D: 5-1 A piece of equipment implemented with new material and technology that can make the user's trip more comfortable

The meaning of the backpack in backpacking experience is twofold. On the one hand, it is a tool for the activity – hiking, ski touring, travelling, climbing, doing laundry, moving, shopping etc. On the other hand, it is integrated into the whole experience of these activities. The weight of the backpack becomes part of the experience, as much as bicycles are to cycling. In the case of the backpack being conceived as a tool, the focus of backpacking is on finishing the task, whatever it is, travelling or hiking. The backpack should appear to be “transparent,” as indicated by Heidegger's concept of “readiness-to-hand.” Thus, the backpack is “replaceable,” Elizabeth pointed out. And the Solomon pack of Frank is specifically “designed for harder climbing,” and “is a crucial piece that can affect safety during climbing.” Frank has six different backpacks, and each of them is designed for a special purpose. He bought them as his needs changed over the years. They are gears for the activity, and a good backpack should make the user physically feel less of it, Frank said. For Harlem, whose main purpose of doing backpacking is to enjoy nature, not to complete a challenge, it becomes a paradox to get into nature with technology on a backpacker's back. Although backpacking is generally conceived as a way of enjoying nature with the least natural impact and minimum living requirements, backpackers are not genuinely living in nature. They have to rely on their equipment and material supports. As Harlem also pointed out, ski touring as his favourite way of backpacking generates less impact on the environment in the winter than hiking in the summer because the skiing track disappears as the snow melts. A

question raised from the issue of technology is: "What are the experiences a user obtains from backpacking in nature that are not available from other experiences?" A backpacker has to endure the weight of the backpack and the inconvenience in the wilderness. What are the reasons for them to experience nature in this way? We may find some answers from another aspect of a backpack's meaning in the backpacking experience described in the following.

"In a lot of time, I must have a heavy thing on my back ... it's the feeling of backpacking." "It's fun to live with your backpack." "It's part of climbing to have something haggling off your back." For them, using backpacks is not a way to complete a work, such as doing photography or wildlife research, it is the experience itself that makes backpacking attractive. This experience is different from driving to a spot, walking for three hours, enjoying a segment of nature and heading home. Backpacks are not only tools that make certain ways of experience possible, they are indeed integrated in the experience. Users not only live by their backpacks, but also live with them. Cindy says: "My backpack is my big friend." Backpacks can not only be tools, but also be companions on a trip. Backpacking is a way of living that is not simplified to the sum of separate experiences: sightseeing, wildlife watching, exercise, breathing fresh air, etc. Some interviewees said that they have tried other ways of backpacking that allow them to carry less weight, such as hut-based trips and day hikes, but "the experience is different." The major difference is that they feel much restricted, losing freedom and independence moving to different areas and staying for an extended period of time. To exchange the benefits of living in a remote area freely to the weight of the backpack, the key is to "keep fit" in order not to suffer, Harlem expressed. Therefore, living with backpacks is not only an inevitable part of enjoying wilderness for a long period of time, it can also be fun to do so.

Theme 2: Backpacking is a lifestyle associated with freedom, independence, self reflection, career selection, and other aspects of the user's life

The roles of the backpacks:

Bond A, H: 1-1 Objects which have their stages of contributions to accomplish the user's whole career of hiking and backpacking

Bond A, H, I: 1-10 Freedom contributor

Bond A, H, I: 2-1 Freedom contributor

Bond A, I: 9-1 A backpack used only for its designed purposes

Bond A, I, H: 9-2 A backpack used for laundry, moving, grocery shopping, and travelling

Bond A, I, H: 10-4 Something gives the user an opportunity to hike and travel in the way they prefer

Backpacking is more than a single activity that users do besides hundreds of other activities they also perform in their daily lives. In many cases, it is a part of the users' lifestyles, which are associated with other phases of living such as clothing, careers and the way of travelling. Gail, who bought her backpack as used, said that she bought most of her clothes at Value Village, because brand name is not her concern. And most of Frank's clothes are T-shirts, jeans, and travelling clothing. They are durable and don't wrinkle quickly, and are suitable for travelling with

backpacks rather than with suitcases. Also, three of the interviewees have done tree planting across Canada. As Gail commented, tree planters and backpackers are certain types of people; the two go hand in hand. Harlem and Elizabeth have developed backpacking as part of their professional careers. Harlem said that all backpacks have their special contributions to his career of hiking and backpacking. It is difficult for him to distinguish which backpack is more important or meaningful to him than others.

Some of the interviewees regarded themselves as backpackers, and some expressed that they do not know what the term “backpacker” really means. For the people who do not want to be labelled as backpackers, they specified the term they prefer to call themselves, such as a climber or a skier. They are people who need the backpack to do the activities.

Freedom and independence are two key terms in common that interviewees used to describe their reasons and experience of using backpacks. Backpacks provide freedom of moving and doing things in a more independent way. Cindy described her experience at the airport: “... they had those carts, they put everything on their arms, they had mountains of things. Then they saw me running with this [backpack]. Of course, it looked heavy, but I was much much faster than they were.” Backpacking is also a “confidence builder,” said Elizabeth, because “it gives you confidence in other areas of life.”

Theme 3: Hiking backpacks are cherished belongings

The roles of the backpacks:

Bond A: 1-8 A belonging and a part of the user's body

Bond A, F, H, B: 4-5 A backpack with unique decorations that show the user's ownership

Bond A: 2-2 A cherished belonging

Backpacks are also belongings that users cherish. Some users mentioned that they use backpacks for laundry, moving, or as cargo packs when travelling. But Elizabeth expressed that she would not use her 360-dollar backpack for laundry. She believed that users should take care of a quality thing and make them last for a long period of time. She also emphasized her ownership, as she proudly displayed her Dark Horse backpack and said: “My backpack. Notice that? Ownership.” It is cherished not only because it is expensive, but also because she had spent three years to study and find the pack she really likes, and has hiked with it for four years. She keeps her backpack clean, maintains it, and even customarily made a rain cover by herself for it. Gail put a string of beads and some patches on her backpack “to make it unique, to make it mine,” she said. Ann, Elizabeth, Cindy, and Gail expressed that they like their backpacks, and it is important to have their own backpacks.

Theme 4: Hiking backpacks are part of the users' bodies and body images

The roles of the backpacks:

Bond A: 3-1 An object sticks on the user's back

Bond A, C: 3-2 A pack designed for the female body

Bond A, C: 3-3 A pack with shoulder straps and hip belts designed for men and to carry much weight

Bond A, C, B, F: 4-2 A backpack looks less bulky with a black gear jammer

Bond A: 2-3 A heavy object and a part of the user's body

Backpacks are designed to move with the users as they are part of the users' bodies. Many backpacks have changeable shoulder belts and hip belts to fit men and women's bodies of different sizes. They are also part of the user's body image. For instance, Elizabeth added a black gear jammer on her backpack because some people commented that her backpack looked bulky. The gear jammer camouflaged her bright colour backpack and made it look smaller.

Theme 5: Hiking backpacks are objects with active influences on the users

The roles of the backpack:

Bond A: 1-4 A motivation encouraging the user to plan trips and to hike

Elizabeth's hiking backpack motivates her to plan trips, to remind her to do backpacking, and to make use of the backpack she invested in. This phenomenon may be analogous to a user who has a new coffee maker, and she or he starts to drink coffee more often. We may find a reason for an object's motivating capacity from psychological explanations. Mihaly Csikszinmihalyi and Eugene Rochberg-Halton (1981, 46) state:

[I]t is not the instincts that determine the way we deal with objects; it is our relationship with the objects that brings about instinctual needs. In other words, children do not get attached to their parents because they have a need for attachment; it is the interaction with the parents that creates such a need.

The interaction between the user and the coffee maker may create a need of making coffee. However, the need of making coffee at home may not exist if the household coffee maker is not available. Users may just be satisfied with buying coffee from the market instead of making one at home. Similarly, if a person has never done backpacking, she may not consider doing backpacking or owning a backpack as a need. Having a backpack at home reminds the user the need for backpacking, and the need for making full use of it. Elizabeth is aware of this phenomenon, which makes "the motivation of planning trips" one of her backpack's functions.

Theme 6: The hiking backpack is a subject of interest shared by members in society

The roles of the backpacks:

Bond A, C, H, F: 6-4 An object shared in a family and used for backpacking with friends

Bond A, H: 1-7 A subject matter of hobby and fun
Bond A, F, C: 6-3 A subject matter of talking and looking

Backpacking and backpacks have their social aspect. Some interviewees go backpacking for the first time with their families, boyfriend, and friends in boy scouts or girl scouts. Backpacks are also shared in the family or with friends. Backpacks are subject matters of interest that many backpack users have in common. People talk about backpacks and share information as sport fans talk about their favourite teams. They often check each other's backpack out when they hike together or meet on the trail. They subscribe to magazines and are aware of new products on the market. Elizabeth expressed doing research for packs is her hobby. It is fun instead of hard work for her.

Theme 7: Hiking backpacks are objects that interact with other objects and with the environment

The roles of the backpacks:

Bond A, I, D: 1-2 A product of technology helping the user get to nature
Bond A, B, G, I: 4-3 A pack with adjustable and interchangeable parts according to the user's climbing needs
Bond A, G, B: 1-9 A container for the user's climbing gear
Bond A, B, G: 4-1 An adjustable container for photographic needs
Bond B, E: 7-1 A container with a garbage-bag lining protecting stuff inside from rain
Bond G, B, E: 7-2 A container that shelters the water bottle from the sun
Bond A, G, B: 8-7 A backpack designed for quick access
Bond A, B: 9-4 A cargo pack
Bond A, H: 4-4 A backpack with a patch on it
Bond A, C, B, F: 4-2 A backpack looks less bulky with a black gear jammer, which serves as a pouch for dropping things in

The backpack is a necessary piece of equipment for a hiking trip among many other equipment. It interacts with other objects as frequently as with the user. Many backpacks have interchangeable parts to fulfil different needs of the user during different trips. For instance, the front panel of Frank's climbing backpack is made of special material so that the sharp ice-climbing crane attached to it does not cut through the panel. The space between the detachable top and the body of Harlem's backpack creates a safe room with quick access for his bulky Cannon Elien II camera. Some interviewees have the same experience of lining a garbage bag inside their backpacks in rainy weather. The garbage bag linen makes the access to their backpacks more difficult, but saves things in the pack from moisture.

Theme 8: The hiking backpack is a product of technology

The roles of the backpacks:

Bond A, I, D: 1-2 A product of technology helping the user get to nature
Bond A, B, C, G, F: 9-3 A pack designed for carrying things and for rescuing
Bond A, B, D: 5-1 A piece of equipment implemented with new material and technology that can make the user's trip more comfortable

Modern backpacks are made with high technology and special material to reduce their weight,

enhance durability, increase comfort, and fit different uses, such as backpacks designed for rescuing. As backpacking is being pushed onto a more professional level, demands on the backpack's performance also increase. Frank, Harlem, and Elizabeth, who are more professional users than other interviewees, mentioned the change of backpacks that have been brought by new technology. The trend of shifting from the external-frame pack to the internal-frame pack is one of the major changes in backpack design recently. Other changes include the new material, such as the Cordura fabric and the carbon fibre panel, and the new manufacturing methods, such as thermo-forming back panels.

Theme 9: Hiking backpacks are symbols and representations

The roles of the backpacks:

Bond A: 1-6 A representation for the user's backpacking experience and mistakes made; and a memorable object for her first hiking trip

Bond A: 1-11 An object that reminds the user the trip it was used for

Bond A, F, H, C: 6-1 A representation reflecting a part of the user

Bond A, F, C: 6-5 A gift from the user's parent

Bond A: 1-3 The backpack and its colour become part of the user's childhood memory

Backpacks are signs. They reveal different aspects of the user, and are memories of trips, events, and people. One of the reasons why Elizabeth keeps her first backpack is for her to remember the mistakes she has made from her early backpacking experience. It also reminds her of the first backpacking trip she went on with her boyfriend. For Don, the image of his bright blue backpack he used as a boy scout becomes part of his childhood memory. The colour is "too bright," he said. The colour is stored as a sensory memory with the backpack. Gail thinks that people may look at her differently when she uses her backpack for laundry: "they get to see a part of me as a backpacker." She also put a Canada flag on it, so that people know that she comes from Canada when she travels. Other patches on the pack obtained from different trips remind her the places she has been. "They belong to the backpack," she said, "it makes more sense to keep them on it and put new patches on the new backpack."

1.5. Discussion

1.5.1. “Meaning” in the user’s sense

We can first take a look at how users themselves use and understand the term *meanings*. Users have their own interpretations and uses of meanings, signification, and representations. Meanings can be studied from the user’s sense and from the theories developed in sign systems. This opinion is made in consideration of the purpose of design practice and discipline. To understand how users think, what users mean by meaning, and why users consider a product meaningful, are important to designers because only if an actively reciprocal relationship between the producer/designer and the consumer/user is developed, a renewable living system of consumption and production can be formed. To illustrate a possibility of eliminating the gap between the producer and consumer, Ursula Franklin (1990, 125) proposed an imagined condition called “job-related constrain,” which means that the employer should use the systems or facilities under his or her supervision. For instance, those who are responsible for providing food to a university cafeteria should have a meal there everyday. Mika Pantzar (1997, 63) also points out that before this period, the producers (“workers”) and consumers (“idle class”) maintained to be different people. The feedback cycle of user-producer did not emerge until the beginning of this century. An example is the Ford model T, which was called the “people’s car.” In the cycle, producers are also users, in which ideas from both sides have opportunities to communicate and exchange, and make a renewable system possible (Pantzar, 1997, 63).

Then what does a user mean by meanings? For instance, Frank used the word “means” three times for three different issues:

1. Not every climber buys just one backpack, but it means a lot to me ... it just means I can climb harder.
2. I can open the zipper here and get into the bottom compartment, which is a nice feature. It doesn’t mean a lot to me. But it does mean a lot to other people. Because when I start carrying my backpack, I don’t stop until the end of the day. So I don’t need to take stuff out.
3. Some people want to have a fashion statement that is colours. This is I think a nice-looking backpack, but that doesn’t mean a lot to me.

Notice that the term “means” used above is associated with “importance,” which is generated from a backpack’s functions, performances, features, and appearance. We may read the first sentence into “the backpack is important to Frank because it enables him to climb harder.” These functions and features are meaningful not because of the backpack’s representational qualities, but because of its substantial qualities.

Cindy used the term “means” in a way similar to Frank, referring to the importance of an object’s inherent qualities. She said: “The ones I used before this one... I don’t think they mean anything to me, really, I just need something for that trip. This one means a lot to me, much much more than other ones since I think this is ... such a good style...”. For her, backpacks she used before are only needs for those trips, but the backpack she is using now is more important than others. As she explained: “I have not yet found any other backpack that makes me like ‘wow! I want that one instead of this one.’”

In the above examples, the term “meaning” is used not to refer to backpacks as representations or significations. They were used to refer to backpacks as “things” that generate meanings. The meaning situations are derived from the use, not from an object’s sign meanings.

1.5.2. Biography of Objects and Design Interventions

Thus far a small database of backpacks has been examined in the field study. The backpacks’ roles are classified into nine themes, and each of these roles can be traced back to its original context from the raw data of transcripts. To put together the roles each backpack has played, we can obtain a segment of each backpack’s life cycle, which is similar to that of an organism. The records of their life cycles reveal how a particular backpack was obtained by a user, how it was used, which trips it had participated in, what meanings it had contributed to a user, and how it ended its life. Since the information was gathered from their users, we can also obtain the information of human factors – the user’s feeling, comments, preference, etc., – attached to these backpacks. This record of an object’s life cycle may be called the “biography of objects”. In recent consumer research, a similar term “biography of thing” is used to call the new study of things:

The term “biography of thing” refers to the new, emerging perspectives aiming to describe and understand the ways different commodities become integrated in the sphere of our daily lives, for instance, the ways meaning attached to specific goods are transformed from experience of uncontrolled chaos to ordered cosmos, and the ways anonymous commodities with objective exchange values are transformed into personal possessions (Pantzar, 1997, 60).

The information of an object’s life cycle can become a useful reference for designers to practice design interventions. The process of design interventions in the ecology of objects can be separated into the following stages:

1. Suggesting the evolving direction(s) in the purposive evolution of objects
2. Analysing factors involved
3. Selecting effective approaches and strategies
4. Analysing the appropriate ways of interventions corresponding to the strategies selected

5. Practising interventions

6. Studying the new dynamic equilibrium after the interventions

Records of biography of objects are essential to the second stage of interventions – analysing factors involved. There are many ways to present the information of objects; in the following example, the format of checklist-matrix is used to present the record of one backpack in the field study: Elizabeth's 75 litre Dark Horse backpack.

The themes in the matrix (Figure 1-5) correspond to the themes listed in the Analysis (p.123-128). In this research project, issues are categorized into nine themes. However, the number of themes listed in the matrix should be different from project to project. The subjects listed in the left column should also be adjusted according to the nature of a given project. The subject A: roles in issues, in this matrix corresponds to the roles of backpacks listed under different themes. For example, code 8-6 represents "an object that is replaceable" under theme 1 (see page 123). There are two roles of the Dark Horse backpack listed under theme 1; therefore, there are two columns under theme 1. The subject B: factors involved, is the factors involved in different roles. They are represented by Bonds (Bond A ... I) that are also listed under different themes with the roles (see p.123-128). In this matrix, subjects A to G are subjects that are related to the backpack's basic information. These subjects concern factors, context, and background information that are involved in different roles the backpack plays. The subjects H to J correspond to the conceptual model composed of meaning, function, and roles discussed in the theoretical study. To fill up this section, we need to further process the information gathered in the last section, the subjects A to G. From the subject K to the subject M, the space is left for the designer to work on during the design process. This matrix can be enlarged or transformed into an electronic form, so that it can better accommodate the information.

Similar forms that present information of an object in a brief format can be developed and modified according to different subjects and contexts of their life cycles. The matrix can also be much more complex as the factors (the "n" number in the hypervolume of niche) that define an object's role or niche increase. The data can also be stored in a different format, such as a computer database. However, they should not be reduced to numbers without context, and should be able to be traced back to their original sources, such as the transcripts and the recorded video in this study. Designers should study the biography of an object in a holistic way, like the way we understand a person through her biography. The approach of design described here is more than expanding the scope of conventional problem-solving methods. In this new scenario, designers become opportunity providers who encourage certain changes and intervene in the trend of objects' evolution. Designing should be carried out based on knowledge and understanding of existing objects and the overall ecosystems of objects. It requires judgements based on knowledge as well as creativity and imagination to foresee and make possible the next step in the evolution of objects.

Backpack: Dark Horse, 75 litre internal-frame pack

User: Elizabeth

Biographical brief: The user had spent three years studying packs before buying this backpack, which is made in Calgary. She has used it for 4 years.

subjects	theme 1	theme 2	theme 3	theme 4	theme 5	theme 6	theme 7	theme 8	theme 9		
A. roles in issues	8-6	5-1	9-1	1-8	3-2	4-2	1-4	1-7	4-2	5-1	1-6
B. factors involved	A	A,B,D	A	A	A,C	A,C	A	A,H	A,C,B,F	ABD	A
C. objects involved											
D. context											
E. importance (user)											
F. expectations (user)											
G. related issues											
H. dimensions of roles											
I. dimensions of meaning situations											
J. functions											
K. possible modes of design interventions											
L. importance (designer)											
M. other issues											

[Figure 1-5] Checklist-matrix of biography of objects, using Dark Horse backpack as an example

After building the checklist-matrix of the Dark Horse backpack, we can then analyse factors involved. We can set the goal of the directed evolution as, say, to transform the role of the hiking backpack from a more outdoor-oriented product to a more urban-oriented one. Travelling with hiking backpacks may become as popular as with suitcases, and the backpack travellers may receive less strange looks from strangers in urban settings such as hotels and airports. Elizabeth mentioned that she used the "Black Horse" only for hiking; she will not use it for doing laundry or as a cargo pack. The possible design interventions are: to promote the notion that the hiking backpack can also be used for other purposes in the urban environment (behavioural solution), to design a backpack for multi-uses: both hiking and travelling are its designed purposes (technical solution), and to design specific backpacks for travelling in the city (technical solution). The possible factors involved are: price (she said that she will not use a 360-dollar pack for laundry), appearance (she was told that the Black Horse looks bulky because of its bright colour), memory attached to the backpack (she keeps her 15-year-old backpack), motivating capability (the Black Horse backpack motivates her to plan trips), and so on. Within these factors, some are more influential than others in terms of defining the backpack's niche. The analysis of decisive factor(s) that affect the population size is called Key-Factor Analysis in ecology. In this imaginary design project, we may assume that the appearance and motivating capability are key factors within the list of all factors that affect Elizabeth's conception of backpacks. The design strategy is then narrowed down to make the appearance of the backpack more suitable for the urban environment and to implement the motivating capacity into the new design. For instance, the Eagle Creek has become a well-known brand name of travelling backpacks. Having an Eagle Creek backpack, which has patterns and texts associated with travel, can potentially encourage the user to travel with it. On the other hand, changing the compartment design, which is not a key factor in this project, may not be an effective approach to achieve the selected goal, to popularize backpacks in the urban settings.

The system introduced here is only one of many approaches that assist designers to practice responsible design. It is object-oriented instead of problem-oriented. We ask the question: "What are the objects? (or What are their roles in their ecosystems?)" rather than "What are the problems?" We also ask the question: "What are the objects after design interventions? (or What are their new roles?)" rather than "What problems have been solved?" We need to rediscover objects, both the new and high-tech and the traditional and ordinary. Focus of many critics on objects has been on the products of new technology, such as internet and the cellular phone. However, there are things of our daily selections that need to be understood and studied. As Pantzar (1997, 60) comments: "Today, for anthropologists, historians, and sociologists, the meaning of things is an empirical question." Designing is a work of actions; studying objects in the past and the present provides a basis for creating new objects for the future. Knowledge gained from studying the existing products can be useful for planning the future, especially with the help of technology that was not available before. Technology can be tools for new types of

behaviours as well as new types of products. Designers are now better equipped with new tools and knowledge to face the challenges of participating in the shaping of new artifacts.

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Appendix 2 **The Transcription of the Interviews in the Field Research**

Participant: **Ann ***

Note: * Participant's real name was changed; I = interviewer; A = Ann.

I: What comes to mind when you think about backpacks and backpacking?

A: You want convenience and those padding on your hips, and everything.

I: How about your feeling?

A: Emotion? It's like happy. I really like hiking. I don't think about my backpack, or conscious of it, because I always hike with it. It's part of hiking. Backpacking and hiking means the same thing to me.

I: Can you describe your backpacks?

A: They were built to be comfortable, they support your back ...

I: Do you have them with you?

A: I borrowed my mom's. This is the first one I used. I don't remember the brand name, that's a traditional hiking backpack, it is built for women, so ... I don't know. It is good for me.

I: Do you remember the volume?

A: I think it's 60 litres. I used it for extended time.

I: Which backpack did you refer to?

A: The other one I used for travelling. It's not specifically designed for hiking.

I: So you used one of them mostly for hiking, and the other one you used it for travelling.

A: Yes.

I: What are the differences between these two packs?

A: One is specifically for travelling. You can zip up the straps, so you don't get caught. It's one big compartment with a big zip. But the one that my mom has has access to the bottom, which is nice. You know, usually you have only access from the top. This one has a zipper on the bottom. So if you pack something you can...

I: Is it an internal-frame pack or an external-frame pack?

A: I don't even know what that means.

I: (Explain)

A: It's internal.

I: How did you acquire your backpack?

A: One is from my mom, the travelling one is from my dad.

I: How long have they used these packs?

A: It's six years old. And the travelling one is about 4 years old.

I: Do you share the backpacks with your family?

A: I would share with them. I used it while I go by myself.

I: Could you tell me how often do you change your backpacks?

A: No, I haven't done that before.

I: How long have you used those packs?

A: Both for four years. That's when I started, too. Before that I had used backpacks that's not big ones, not 40 litres. Because I was smaller.

I: Could you describe how do you use your backpack?

A: I pack it carefully. So to me organizations are very important.

I: Are there any differences on the way you use two packs?

A: The travelling one ... when I go hiking, I usually go camping. So I have to bring my sleeping bag, Therm-a-Rest, my dried food, small utensils, stove...

I: How do you do with your travelling one?

A: The travelling one is like a suitcase on your back, it's just one big compartment, you can zip it all the way. There are hip belts on it, so you can take it hiking. Although it's not really the purpose of it.

I: Could you tell me more about how you use your hiking backpack?

A: For example, something I put outside of the backpack, that I want right away, I hook them outside instead of inside. And I like the access on the bottom. If I like quick access on something, I should put it on the top and the

bottom.

I: Do you feel any inconvenience when you are using the backpack?

A: Not really. Sometimes it's hard to put on. But when it's on, it's on. Sometimes it might be nice to have, although mine doesn't, some more components outside. Those would be more like luxury. Some have a mesh bag outside. You can put your bathing suit there, to let it dry. It's not like necessary, but...

I: Did you use it for activities other than hiking?

A: I haven't, but I could. I pack very light, so I can use my day school pack, for sure, for three days.

I: Did you travel or hike with your family or friends?

Yes.

I: Is this one of the reasons that you pack very light?

A: If you go with people, you can share. But in general, I pack light.

I: Have you ever weighted your pack?

A: No. I really don't know. We don't have a scale. I don't think it's a hundred pounds.

I: What are the things about your backpack or experiences related to backpack that are special for you?

A: Usually it's the hiking experience. Like I said before, I don't really take into account how my backpack refers to that experience, but I suppose if something was drastically wrong, I would remember it. But for the backpack that I was using, it had nothing wrong with it.

I: What's in your mind and how do you feel when you are backpacking?

A: Depends on how long if you are hiking. At first, I am like eager and enthusiastic, and then it gets hard, especially when you have a very heavy backpack. Later on, it's a lot more labour. But I enjoy doing it, also. I usually carry dehydrated food, but sometimes you have to carry water. But we have a filter. The water weights a lot. So it does get lighter as you go along.

I: What other things do you feel?

A: I like to be outdoor. I just enjoy myself while hiking.

I: What would it mean to you not to have a backpack?

A: I think it would be kind of terrible. It would be very inconvenient to go somewhere far away or take a tent, for example, you know. It would be terrible. You would be unpleasant. It would be inconvenient.

I: Do you use it for other purposes, like shopping, moving and so on?

A: No. I use my little backpack for shopping.

I: Could you imagine without a backpack in your life?

A: Personally, I don't feel the backpack. I know it is heavy. But I couldn't be there for an extended period of time if I didn't have a backpack. I could only stay there for one day and I have to go back. So I felt very free and nothing as much. If I didn't have a backpack, it would be terrible. I couldn't be free that way.

I: Have you talked about backpacks with your friends?

A: I am interested in buying a backpack, so I talked about technical things or I asked people who are interested in buying one, but only people who I know have experience on hiking. I didn't talk about it to many people.

I: Why are you planning to get a new backpack?

A: Because I don't have one! I want to own my own backpack.

I: Is it important for you to have your own backpack?

A: Yes. 'Cause I can be free. Because a backpack signifies a lot. It is like a joke when I said I can be free, but really you can. And I don't have one right now. I want to be able to go hiking. I want to own one. I can't really get access to my mom's backpack.

I: How do you choose your backpack when you buy one?

A: I go into the stores and ask them, to get information about certain things that I want, and find out different models, how some are good, good for women especially ... just ask people who know.

I: What are the concerns you have regarding a backpack?

A: In terms of aspects, it has to be really ugly. I don't even know ... Like bright pink, and I won't buy it. But I don't see many very ugly ones. I don't care about how it looks. But the material is important, how the seams are sew, how it's adjustable, how you can access ... For example, I really like the bottom access, and outside access, too. Straps for holding things, your Therm-a-Rest would be put outside, if it rains...

I: Would you say you are a backpacker, and why?

A: Yes, I am a backpacker because I go backpacking. Do people think differently?

I: I think that not everybody who goes backpacking thinks he or she is a backpacker.

A: Really? If you go backpacking on your own choice, I will think you are a backpacker. That's the definition of it, because I like it. I don't know anyone who goes they would say they're not backpacking. But maybe people's definitions are different.

[Private Camera Conversations]

A: There's not much more I can say than in the interview. But the most important feature of a backpack, I think is function. It would be nice if it has aesthetic quality. But that's a secondary importance to me, because if it's not a functional backpack, in terms of efficient, and doing things I want it to work well, then it will make my experience of backpacking less enjoyable. And I can use my less enjoyable experience ... I could blame the backpack for that poor experience. So I think it shouldn't interfere with the process of hiking or backpacking. It should just be like your hiking boots, or the shorts, the sweater that you're wearing. They're all functional. They help you keep warm, keep comfortable. In fact the backpack does more. It keeps your essential items on you. But it's still functional. And if it's inefficient in any way, it will contribute to less enjoyable experience. So that's the most important feature for me, 'cause I am going to buy a new backpack. And I am like a university student, I don't have a lot of money, so, I can't afford to buy a very expensive backpack. It might be very efficient, very light, very comfortable, but if it's very expensive, it's not possible for me to use it. So, the price of it, I guess, is quite important to me. I think that's about it. That's about what I'm really concerned about the backpacks, something I don't think about a lot.

Participant: **Bob ***

Note: * Participant's real name was changed; I = interviewer; B = Bob.

I: What comes to mind when you think about backpacks and backpacking?

B: Travelling in the backcountries, hiking, hiking in the mountains. And I want to travel in some countries like Europe and Australia. so when I think of backpacking, I think of going to different places where I can go hiking.

I: How about backpacks?

B: What kinds of backpacks?

I: What comes to mind when you think about backpacks? Do you have any backpack with you?

B: No, I don't own a backpack right now. When I was in the army, I owned the rack sack. I like it a lot because you can fit a lot of things into it or on the rack sack. And it has a very sturdy frame, so you can carry very heavy load on it, support through your waist. So it's a very efficient way of carrying heavy loads.

I: Is this your first backpack?

B: When I was in the army, it was my first backpack.

I: Did you say that you have used another backpack?

B: Yeah, my friend lent me his backpack when I went to Jasper this summer for hiking. And his was much nicer than the army rack sack...

I: Why?

B: Well, the padding was better, it worn better. The army rack sack was designed to put the weight on your shoulder, and on your waist. But the frame was steel frame, and there's little bit of padding, not much. And then the kidney belt was just a, say, nylon strap. So very uncomfortable, especially after a while. Where my friend's backpack was new and the kidney belt's got padding, and it fit better on my back better than the army's. The army's didn't pull those straps to adjust the weight on my back. It was easier to carry that load with that backpack.

I: Did you say that the army rack sack was designed to carry very heavy weight?

B: Yes.

I: Could it carry heavier load than your friend's backpack?

B: No, I don't think so.

I: So one is the internal-frame, and the other is the external-frame pack.

B: Yeah. So that the army one was the external-frame. So I like the internal-frame better.

I: Could you describe your backpack in details?

B: The army backpack was ... they were the big kind of bag, I guess, a big sack. And this was connected to a big steel frame, and the steel frame rested against my back. The pack was here and the steel frame was here, and the straps kind of connected into the frame. And then there was a kidney strap came along. The kidney straps came over my waist, and the straps came over my shoulders like this. And also there were straps on the back-ward, to strap over things like a sleeping bag. I could strap the sleeping on the bottom, also on the top I could strap things...

I: How about the new one?

B: The new one ... the sleeping bag didn't have to be strapped on the outside. You put it in all the way to the bottom. The main bag was much taller, extended to ... taller than my head. So there's much more space that can put into stuff. The army one, the main bag was not as big, and the colour is bad. The army one was pretty impressive.

I: How do you feel about these two? Do you like the new one better?

B: Yeah.

I: Do you like the colour?

B: I like the colour, of course.

I: What is its colour?

B: Black and red. And it is also very waterproof. The army one was supposed to be waterproof, but being packed a while, it lost. 'Cause it usually used for many years. So we put a big garbage bag in there. Where this one I was going to do that, with my friend's backpack, he said, "No, no. You don't need to. It's waterproof." So it was good.

I: What are the differences when you use these two packs? You mentioned that one you need to put a garbage bag inside, the other you don't. What are some other differences?

B: The newer one has many more straps, like you can adjust how you weight there ... I like using the internal-frame one, because it's more comfortable. And then I felt I can carry more weight on my back. I am not sure it was because the internal-frame or because its a nicer backpack. I am not sure why I was able to carry more with that one...

I: Did you actually scale the weight?

B: No, I didn't weight it. But I think it's heavier. I don't think I put that much stuff in the army one, because it's just not big enough.

I: Are there a lot of compartments outside the army rack sack?

B: Yeah. The army one has lots of pockets on the outside. So if you need things quick ... 'cause you always want to get things quick in the army. They said, oh, " you have five minutes to do this..." So you need something, like fresh salt and stuff I usually pack them on the outside.

I: Is the quick access a big advantage when you go hiking with friends with the internal-frame one?

B: Certainly there would be something that I want, in the pockets on the outside, like snacks. If it starts raining, you need your raincoat on the outside. So a lot of pockets on the outside are always good, 'cause there's always something you want to get at. If you got cold or something...

I: When you used the internal-frame one, did you feel any inconvenience?

B: The only time I used it was backpacking in Jasper, so ... a lot of free time, we were not rush. If we wanted to stop, we just stopped...

I: So the quick access to the pack was not the main concern of the new pack...

B: No, it's not a main concern.

I: Was it because you were more relaxed?

B: Yeah. But supposedly when it starts raining, all of a sudden you want your gear.

I: Did you run into rains?

B: Yeah, we did.

I: Did you find everything you need easily?

B: No. I didn't have a raincoat. But my friend had his raincoat, so he changed very quickly.

I: Did you have a rain cover for the backpack?

B: No, I didn't.

I: You said it is waterproof. Was it really waterproof?

B: Yeah, it was waterproof.

I: Do you remember the brand name?

B: My roommate may have it still. I am not sure. I think he might have it here.

I: That's good to have something we can look at.

...

B: So, Serratus.

I: Could you describe how you use it?

B: I put my sleeping bag into the bottom. I had more stuff in this than I ever put in the army rack sack. If I got this full, I would not be able to carry it.

B: Did you adjust anything? For example, there is an aluminum stay that you can bend it...

I: No, I didn't do that. Because I didn't know you can do it. But I adjusted some of these straps.

I: What other activities do you use it for?

B: I don't use it for school or anything. If I have my own backpack, I will probably use it when I travel. Because it's so convenient ... lots of things. You can bring so many things with you when you have your backpack. It's not like a suitcase. You can carry it on your back...

I: If you go travelling, you will have your backpack with you.

B: Yes, I will use a backpack. Everything I own will be in the backpack.

I: Could you tell me how often you change your backpack?

B: The army rack sack ... I had to give it back. Things in the army they were built very well. The rack sack had been

used for a long long time, more than five years, for sure. Twenty years. Because while I got my backpack, there were ... when you got into the army, you put your name on it. So when I got mine, there were like five or six names of the people who were used before my name.

I: What are the concerns you have if you want to buy a backpack? Are you concerned about aesthetics?

B: No, I don't mind it's all green.

I: What are the things about backpack that are special for you?

B: I usually associate backpacks with cases you are going somewhere. Like I was going to Rockies, and your backpack allows you to stay in the nature for a week. Your food, your tent, your clothes everything you need you bring with your backpack. So it allows you to get away from your ... You rely on electricity, grocery stores. You need transportation, your water, food. If you have a backpack, you just get water from the river. You have your food with you, your tent with you. You are going to do anything you need to survive with your backpack. You may get lost somewhere. If I get lost and only by myself, I will not be able to survive, 'cause I don't get anything that's required. But if I have a backpack with me, I would make sure I put a compass in it, first-aid kit, waterproof mattress in it, and I would say I would be able to survive if I had my backpack with me.

I: Do you pack heavily?

B: When we went to Jasper, I packed pretty heavy, probably more than I should have. I carried lots of food, because we ate a lot. And I got more than what was required. I think when I go to Europe, I won't pack as heavily. I only went to Jasper for a week. But when I go to Europe, I need to carry things for a month. So it is so heavy that I just can't carry. So I need to throw things off when I go along. So I think it's important to keep things lighter for a longer trip.

I: Will you buy a smaller backpack when you travel?

B: I am not sure yet, maybe I will buy as big one as I can, and then I don't need to load it full.

I: What would it mean not to have a backpack?

B: If I didn't have a backpack, I would not be able to go travelling, or it's not the way I want to. I wouldn't be able to go to as many places as I want to. I want to go hiking when I am travelling. I want to go camping. So if I didn't have a backpack, I wouldn't be able to go camping wherever I wanted to. If I didn't have a backpack, I wouldn't be able to carry my tent with me. I had to rent a car or something.

I: Do you share your gear when you go hiking with friends?

B: There were two of us actually, this summer. When I was in army, there was like twenty people...

I: Is sharing the gear one of the reasons why the army rack sacks are smaller?

B: Yeah, in the army ... if you are going somewhere, you usually have ... people hiking out in the woods...

I: How many trips had you gone with army?

B: I never just went out with the rack sack when I was in the army. Usually there was like ... your rack sack was for your personal belongings. What happened there was a big white camp; they had troops ... You brought in equipment. Your rack sack was just for your clothes. Your rain gear and very personal belongings, like everybody had basically the same thing. You also had food in your own rack sack. They also brought in basically the entire kitchen. So there was a big radio. There was a big supply section they brought in. You would never be in the woods just by yourself with your rack sack. The only time you would be by yourself was during the winter, and we carried the sleigh. You could carry much more stuff. Really, there was no sharing your rack sack in the army, everybody carried the same thing.

I: What does it mean to have your own backpack comparing to using your friend's?

B: It's different, I guess. Because when we hiked in Jasper, I carried the stove and tent, and he carried most of the food. We kind of shared different things, and we also carried our own clothes and stuff.

I: Are you planning to get your own backpack?

B: I am trying to buy one. I am not sure if I want to get a new one or a used one.

I: What does it mean to you to have your own backpack?

B: I like to have my own backpack. I don't want to have to ... If I use someone else's backpack, I have to worry about ... it's not my property. So I have to be careful that I don't get it dirty ... 'cause it's very expensive in this style. If I have my own, I can use it whenever I want.

I: What are the concerns you have if you buy your own backpack?

B: Quality. I want to make sure that it can ... it won't rip a part when I put very heavy load on it. Sometimes things when you buy them they were okay, then once you pack it on it overly ... so I mostly concern about the quality.

I: Is price also your concern?

B: Yeah, possibly go for very low price. I don't want to pay too much.

I: Do you have a price range in mind?

B: If I bought a new backpack, I will probably pay 2 or 300 dollars, to get a very good one.

I: Do you have some special experiences related to backpacks or backpacking that's important to you?

B: I am not sure. I really enjoy it.

I: Do you use it for other purposes?

B: No, just for hiking. I mean so far. If I buy a new one, maybe I will use it for other things. In the army, they don't let you use it for your personal use. I didn't use my army backpack for anything else, other than hiking.

I: Would you say you are a backpacker, and why?

B: Because I want to travel ... In my life I only travelled to different places in Canada and the United states, I really don't have much awareness of different cultures. Everywhere I have been was very similar to where I had been before, so ... my backpack would be a very critical part to that experience. Because everywhere I go, I will bring my backpack with me.

I: Could you talk about how backpack relates to your life?

B: You want to know how people build a relationship with a backpack? For me I have never really built a relationship with a backpack, so I can't tell you that.

I: Why did you start to use backpacks?

B: I never had that need to use a backpack before. But now I go hiking, travel on my own. So my backpack would carry everything I need. But before, I used suitcases. I wouldn't be able to walk that far with my suitcases, I need a car. It just gives you a lot of freedom. For me that's the importance of backpack.

I: If there were a way that you don't have to carry a very heavy backpack to go hiking, would you like to do that?

B: I am not sure. I don't think I want to do that. I would rather to carry it with me 'cause if I only carry a small pack, it will restrict where I want to go. So I would rather carry a backpack.

I: Could you imagine going hiking without a backpack?

B: For me it's the best way to go hiking. Or you can hire somebody to carry your stuff along the way. I would rather carry everything with me.

I: Did you have any problems when you were using your backpack?

B: A couple of times, I didn't load it right. I had really heavy stuff ... I strapped the stove on the outside. It pulled me back to the ... so lousy, I moved it down and put it into my pack, and it's a lot easier to move.

I: How about the army rack sack?

B: Anything you need quickly, you loaded them to the top. Your sleeping bag, your air mattress could go all the way down to the bottom. Just from experience. Heavy stuff closes to your body and to your hip.

I: Do you think you need to have a lot of experience to go hiking?

B: No, like in Jasper, the trails are busy, you won't get lost.

I: Do you have different feelings regarding different packs you have used?

B: The army one is lighter than the internal-frame one, but I didn't enjoy carrying it as the internal-frame one.

I: Have you talked about backpacks with your friends?

B: Kenny has this catalogue here, but we didn't really talked about this backpack.

I: How do you choose your backpack?

B: I really like moss green, it's my favourite colour.

Participant: **Cindy** *

Note: * Participant's real name was changed; I = interviewer; C = Cindy.

I: What comes to mind when you think about backpacks and backpacking?

C: The first thing when I think about backpack is this is the only way I can carry things when hiking. You cannot go hiking with everything in your arms. That does not work. And your back is so much stronger than your arms. It's the only way you can carry things. And depending on how the backpack sits on your back, some backpacks are comfortable, some are not. And when it comes to backpacking, just for me a way to get out. Yeah, for me, it's freedom to be out there and hike.

I: Could you describe your backpacks?

C: The one I am having now is the best one I had. It is a soft one ... it has a soft back. It's a Swedish brand name. It's called Hagloog. They make different backpacks for market, very big ones, small ones, but they're all soft. They don't have any frame. And it has a lot of different pockets. I think it's good in a backpack that has different pockets, so you don't lose things, instead of just one big pack. The really good thing with this one is ... it has a really big pocket down here. It is 60 litres. You can also open it this way. So you can open the whole backpack, so you don't lose anything. It also has one opening on the bottom, and it has side pockets ... It's really convenient. This thing is really important, the belt. The belt is really soft, straps around your ... I use it (a small pouch attached to the hip belt) for my money, or my camera, anything you need to get out fast ...

I: Did it come with the backpack?

C: Yes.

I: How long have you used it?

C: This one I have been using ... I think I got it in 94. I have used it so much, I think I have used it forever.

I: How did you acquire this backpack?

C: It's a present, a gift. I got it from my mom and dad, 'cause I have been using my parent's backpack before I really had my own.

I: Could you describe some other backpacks?

C: I have been using the backpack that has a frame on the back, so you can hang the backpack on the frame. It's much softer than this, but you can hang it on the frame. Some people think frames are really good, I don't think so. They hurt your back. Of course they are good at other things. They are really stable and stuff ...

I: Where did you get the external-frame one?

C: My family had one. But it is a really tall one with a big frame on it. You can actually use it as a You can rescue people, use it for rescuing or you can carry things. You can use it for a lot of things, but I don't think it's About the backpack I was using, it was good, but I like this better.

I: How long had you used that one? Was it your first backpack?

C: It was my first I do have a smaller one ... And this is my first own backpack. The one with the frame, yes, that's the first one I used. About ten years ago, when I was 12 or something. That's when I went on hiking by myself, my parents drove me to trails, and stuff like that, but before, I went hiking more with my parents, I guess they were carry much more than I was, so ...

I: You said you have used four packs. How about the others?

C: The other one is much smaller than this one. It's about 45 litres. And the forth one is my dad's, which is one big pack, I can't remember ...

I: How often do you change your backpack?

C: I will use this 'till it actually breaks down. I mean I am not going to buy a new one. I really like this one. I am not going to buy a new one 'till it breaks. I hope to use this for five more years.

I: Could you describe how you use this one?

C: I use it for hiking and any kind of camping; like I have to bring all of stuff, especially when I bring my sleeping bag and stuff. Every time when I go hiking, camping, every time when I go travelling, when I want to take a bus to somewhere, I will take it. 'Cause it is a good thing to have one on the bus, on the plane; 'cause I hate those suitcases. This is a good thing because I can always carry by myself. I never need a car.

I: Could you describe more details about how you use this?

C: When they take it on the plane, I have to put it in a big plastic bag. But they usually do that for me in the airport. When I go on the bus, I put it underneath, in the luggage space. What I usually do is I have this one for my clothes and stuff, and then I actually bring a small backpack when I was on the plane.

I: How do you use other backpacks?

C: The smaller backpack, 45 litres, I used it mostly for day trips ... or if I need to bring a lot of things to school ... How large is this?

C: 60 litres.

I: What else do you use it for? like shopping ...

C: Yeah, the smaller one I always use it for every kind of shopping. And this one (60 L) I use it when I want to buy a lot of stuff. Like Superstore ...

I: Can you describe more about how you use the external-frame one?

C: That one I didn't use it for any other occasion than just hiking, backpacking, camping ... I did not use it for any other stuff. I just had it on my back.

I: Why you do use these backpacks differently?

C: 'Cause I was younger then. I didn't do this much backpacking than now. You know, when you get older, you can use the time as much as you want for any kind of stuff that you want to. When you are younger, or when you are 12 years old, you are more restricted to what you can do, how long you can go camping. And you basically don't have that great ... I mean you don't have those great hobbies. But now I go backpacking as much as I ever can, I go travelling wherever I want to. Then, it's good to have a backpack. When you are younger, you use your backpack less. You do not go travelling as much by yourself. You know what I mean. So I think that's why I use backpacks much much more.

I: What are the things about backpacks or experiences related to it that are special for you?

C: The ones I used before this one I don't think they mean anything to me, really. I just needed something for that trip. This one means a lot to me, much much more than other ones since I think this is a ... such a good style, and ... I don't know, I have not yet find any other backpack that makes me like "Wow! I want that one instead of this one!" so ...

I: Why does it mean so much?

C: I don't know, I guess it has everything I want. I can't see why I would need other pockets or ... it sits really good on my back. And just the right size for me, like when I pack this full, that I know I haven't fit it right. I can fit everything. It has a really good thing on the top, I can adjust this one, so I can extend it. So it can be really high, so even you pack too high, I can always close it. And it also has some very nice things that I want to show you. It has a build in raincoat, so it never gets wet, that's good.

I: Do you use your backpack in any way that is special, or different from other people?

C: Not really, I can't say that I use it for ...

I: Did you change anything or add something onto it?

C: I don't think so. Of course I ... this one for me is easier to take it up when I need it ...

I: Have you used these holes?

C: I guess you can use it for strapping things. I know you can use it for drying things, if I have a towel I need to dry ... I can put it here, and I put a string from ...

I: You have a patch here!

C: Yeah. 'Cause it really shows where I active my life and where I am going to do. And it also reminds me my old university back home, so it cannot ...

I: How do you feel when you are backpacking?

C: If you are carrying a lot of stuff, and your backpack is not good, of course it makes it really hard. You don't feel the same freedom as you have a good backpack. If you have a good backpack that doesn't cut your shoulder, then backpacking is just very easy and nice, relax.

I: Since you have used two different backpacks, how do you feel about them? Is there any difference?

C: I don't remember ... I remember that one with a frame, I don't like it as much 'cause it seems to hurt my back more than this soft one. But depending on how you carry it, some people prefer the ones with the frame, they

think that's better for them.

I: Have you met someone who prefer to use the external-frame ones?

C: I think I had, since they are still produced, so ... It must have people who like to use them. I can't remember what they told me about it.

I: How do you feel when you are backpacking?

C: Let's say if you have a backpack that is comfortable, if I carry stuff I cannot forget that I have a backpack. And I will get used to the weight. In a lot of times, I had to have a backpack on my back when I was hiking, because that's the feeling of backpacking ... have, not too heavy, but a heavy thing on your back. You feel like, ok, now I am going, you know?

I: If there is a way that you can go hiking without carrying a heavy backpack, would you prefer to do that?

C: No. Backpacking for me is having everything on your back, just like a way of spending time. I carry everything I need on my back, that I know I can stop wherever I want to 'cause I have everything on my back. I had my tent in my bag. I had my sleeping bag in my bag, and stove, everything. So I don't need anything else. If I was restricted to hike to a special place where I can find all these stuff, what if it gets dark? I mean if I have everything on my back, then I don't need to be restricted. So I think that's why I like it most. It's so independent, having everything on your back. You have everything on your back or your friend's back. That's everything you need in your life ...

I: Do you usually hike alone or with your friends?

C: Usually with friends.

I: Do you share your equipment?

C: Of course. I put everything personal stuff in my bag. We usually share the food. Somebody take the stove, somebody take the poles of the tent, depending on how many of us ...

I: Do you have some special experiences related to sharing the gear?

C: We usually try to hike together. I mean if there are two of you, you should not be separated. I think it's very important to stay together. I think you should not be farther apart than you can see each other. You have to wait ...

I: How heavy do you usually carry?

C: I never really weight my backpack. One time when I went hiking in Germany, I put way too much stuff on my back. I have never carried that heavy stuff on my back, so it's really hard. So I don't know, 20, 25 maybe. I try not to carry too heavy things. When it's hard to put on my back then it's too heavy.

I: Why did you carry so heavy at that time?

C: At that time, I just went down to Germany and we hadn't really decided how much we were going to go hike. I ended up hiking with all my stuff. We actually hoped that we could leave some stuff, but we ended up with carrying all of the stuff with us, because we decided not to come back to the place where we started to hike. Not our plan. We actually planed but we changed our plan, so ...

I: Why do you choose using hiking backpacks for travelling?

C: I don't have suitcases, because it would be really hard to carry suitcases. I usually don't need more than a backpack. If I go for two months, I can still pack everything I need in a backpack ...

I: Will you change the way you travel in the future?

C: I don't think so, because the way I am having now really works well for me. 'Cause it makes me really independent. I can be travelling by myself if I have this one, and I have a smaller one, I can always carry everything by myself.

I: Do you have some special experiences you want to share when you're backpacking?

C: I don't know, really. I guess I have been running a lot with this one. You know, when you have to catch the plane, then it's really really good to have a backpack, still it's really heavy though ...

I: Do you feel that people see you in a special when you carry a heavy backpack?

C: Yeah, I guess some people that don't realize that it's good to have a backpack. They have those carts. They put everything on their arms. They have mountains of things. Then they see me like running with this one. Of course it looks heavy, but I was much much faster than they were, you know? But of course, sometimes it's heavy and I am all sweating and everything. Of course people looked at me they all said, oh, poor girl! I don't care! This is the most convenient thing. It's the best way to carry things wherever I go.

I: Why did you start to travel in this way?

C: I don't know. It gave me an opportunity to get outside. My parents were out hiking and camping. I think I got most from them and then a lot of it from friends, like early friends, like I joined the Scouts when I was 12, so we always went camping and hiking ... So that's why I began to be outside a lot, and of course when you grew up doing things, sometimes you drop. Sometimes it grows bigger and bigger. And then you got independent. You can decide wherever you want to go. Then it really shows you like something. So I can't tell you exactly why I like it, it just like some people like to play soccer, some people like to play hockey ... It's just like a sport, or just like a way of being, I think.

I: What would it mean to you not to have a backpack?

C: I don't know. I guess I could not go out hiking, 'Cause I could not bring my stuff. I could not carry everything. There must be another way to carry everything. But I can't pretty see another way you can carry things instead of having them on your back, because your back is the strongest part of your body for carrying things. Maybe you can put things on your head ... I don't know. Today, I can't see any other way I can carry things while I am camping, or travelling.

I: What has the backpack or backpacking changed your life?

C: It makes me be able to travel more. It gives you an opportunity to be able to hike. If I don't have a backpack, I would probably not be able to be outside at all. I can be travelling without a backpack if I have a suitcase. It's a way of doing it, but I would be much more worry that I wouldn't be able to carry it. And every time I go backpacking, it would be a disaster that I would not be able to carry anything.

I: Have you talked about backpacks with your friends?

C: We talked about different kinds of backpacks. Of course when you go hiking, people look at each other's backpack. What kinds of pockets do you have, how much is it, what's the brand name, where did you buy it, how big is it, what kinds of problems does it have ... Yeah, you always check your friends' backpacks out. You do actually, it sounds funny ...

I: What are the things you care about the backpack?

C: I guess I care about how it organized to me. I would get it and looked for a better waist belts. Sometimes I would say or I thought that my backpack is better. And of course my friend made fun of me. Or I would say, I have a pocket there, and a pocket there ...

I: How about styles, or colours, brand names ... ?

C: I don't care about the brand name. It doesn't matter it's what kind of brand name. And I don't care too much about the colour either. I prefer dark colour. If it's dark, it doesn't get as dirty fast. I mean if I have a white backpack, it would be gray after a while ... So I prefer black, blue, dark green, maybe, because they don't look they are really used that much. And the style doesn't really matter. If it's comfortable, it's your style. If it sits nice on your back, it's a nice style. And of course, convenient things, like different straps, different ways of closing it, different pockets ...

I: Are you planning to get a new backpack?

C: I haven't decided. If I want to buy one, I will go for 60 litres', and look for different pockets, how it sits on my back. And the colours, I do want it to look great to me. I mean ... like I said, I like dark colours. So if it were bright yellow, I would prefer dark green over bright yellow one.

I: Would you say you are a backpacker?

C: It's kind of lifestyle, I think. People that are backpackers, they like to hike to places. Other people they might be campers, and then they take their cars to a camp and then they camp and then they go home with their cars. Backpackers they came by bus or the car to the trail and then they hike out. They hike for several days and then they come back. So that's different.

I: What is it like to be a backpacker?

C: I think it's nice, it's fun. When you feel that you actually carrying on your back and you really walk, use your legs to really hike. If you take the car, you will be relying on your car, if you hike, you are so independent on yourself. So it's so independent.

I: Is it important to have your own backpack?

C: I think so. If I don't have my own, I always have to rent it or borrow it from people. But it's a thing I need for sure. I like to travel with it. It's my big friend.

Participant: **Don ***

Note: * Participant's real name was changed; I = Interviewer; D = Don

I: What comes to mind when you think about backpacks and backpacking?

D: I think of adventure. I have done adventure and I also done work. Yeah, that's pretty much about it.

I: What does it mean when you said "work"?

D: Last year, I just went tree planting. That was quite a deal, you had to prepare.

I: Did you carry your backpack when you were tree planting?

D: To get all of the stuff to get to the campsite, you had to camp. It's far away.

I: Where was it?

D: We had different territories like ... I just moved to Edmonton, just now. I came from Thunder Bay, Ontario. We went 60 kilometres north Thunder Bay, and then 9 hundred kilometres up.

I: Could you describe some of your backpacks?

D: I can't think of the names, but I can describe them. I had one that's for my back. It had the belt thing on the front...

I: How many backpacks have you used?

D: Two. I had one, which was a smaller one. It's made of nylon. It was very thin, and not very good.

I: How large was it?

D: My little one is this big, right, a day pack...

I: How about the large one?

D: It's about this big. It was a gift. I believe it was Sierra Design. It's all weather proof. It could take snow, extreme heat, and rain. Since I lived in Thunder Bay, it was kind of requirement to have that. Otherwise it would get all wet.

I: When did you get that one?

D: I got that at about three years ago. My parents gave it to me.

I: How long do you expect to use this?

D: I believe my pack sack can last for about 3 to 5 years...

I: Could you describe more about that backpack?

D: It is green, dark green. I had one before that is bright ... It's kind of too bright...

I: Which one is that?

D: The light blue one. The material is very thin. I think it was for kids. I had it since I was a scout. It had a bracket for your back. Very light. I think it's for very light items.

I: Where did you use it?

D: The bright blue one I used it in scouts, 1987.

I: How did you get it?

D: I got it also as a present from my mother. The light blue one is in the garbage. It had a blue frame. It had an aluminum bracket for your back, and it's all sew in one unit. It was okay, but it hurt my back. I think that's why they changed the whole design. They changed it just for that fact. It didn't go down to my waist...

I: Is it because of the size?

D: I think that's because it was made for adult and I was just a little Boy Scout. So, that's what happened. When I was young, I was very disorganized...

I: How do you use your backpacks?

D: What I believe what's important to campers is space efficiency. I try to pack my pack sacks with everything I need that is important. The manufacture, like my new packs there, you can fit everything: pots, frying pans, sleeping bags...

I: Is it the Sierra Design one?

D: Yeah. That one, the Sierra one, has compartments and zippers everywhere. And it had a compartment for everything. You use space easily and you don't carry too much weight, because weight is a factor...

I: Do you remember how heavy do you usually carry?

D: I remember for about tree planting was about 80 ... no, 60 kilos. It's about a hundred and forty pounds. I think that's the maximum.

I: Did everybody carry almost the same weight when you were tree planting?

D: Everybody individually came to the camp.

I: Could you describe the process of tree planting?

D: I generally pack for myself, not being selfish, I mean. I break it down from main clothes, warm clothes. One of the trick for hot days is you carry lots of whites, 'cause the sunrise.

I: How long had you been tree planting?

D: I planted just last year. It's two month, but every 7 days you came back to the town and did laundry.

I: Is the town Thunder Bay?

D: Yeah. Every 10 days to 7 days, the longest day was 10 days out, and then came back.

I: How many people were there in your group?

D: Our group was 50 people. 50 people came, 25 people quit, and 25 people graduated. In the 25 people quit, I would say 80% of the 25 people were unprepared, so they quit.

I: Can you describe more about tree planting? How did you carry those bags?

D: You set up the tent. You get a site way.

I: Did you carry your backpack when you're planting?

D: We had a day bag. We carried our lunch, and our raincoat, and emergency kit you may want. Some people brought suntan lotion, and myself brought bandage.

I: How did you carry those plants?

D: We had a seed bag. It's called seed bag. If I stood up, it had pouches here, and one here. You carried your pouch and your trees in here.

I: How did planting work in a day?

D: Our day started at 5:30 in the morning. You woke up. You had breakfast by 6. From 6 to 7 you made a lunch for yourself. Some people had a whole loaf of bread. We're all ready at about 7 o'clock. You wouldn't get to your site 'till 8 o'clock. 8:30, started to work. You're always on your feet, not in house you can sit down, 9 to 5, on your feet and put the plants into the ground.

I: Did you carry only your day pack during planting?

D: Yeah.

I: Are there any special experience that's related to your backpack?

D: I don't really have anything that is special about my backpack. I had a memory when I was Boy Scout. I had that bright blue pack sack, which hurt my back, so that's my memory about it. I had a good time. For my other backpack, I can't say I were ... I had a good memory because I was tree planting with it, so a good learning experience. I needed some money and I went camping, so...

I: Do you think you use your backpack in a different way comparing to others?

D: I would say I am very organized. I have a system that comes by space efficiency in your bag, I don't have any symbols or anything in terms of .. I didn't put any patches on my bag. I put a garbage bag in my packsack, as a lining, 'cause the rain.

I: Does it cause any inconvenience since you cannot get access to your pack easily?

D: I always lay my important stuff in hand's reach. I just am more cautious...

I: How do you organize your backpack? For example, when you use it in the tent...

D: I have my own tent; it's a two men tent. Especially when you go tree planting for such a long time, you don't want a little tent. Otherwise it won't be comfortable. That's the big thing about camping.

I: Do you use that backpack for other purposes?

D: Not really, I just use that for camping and for ... Oh, Yeah! For moving. I used it for moving once. From an apartment to another apartment. I used it for recreational camping.

I: Do you usually hike or camp alone?

D: I hike with people.

I: How long do you usually hike in a trip?

D: It varies from a weekend to 7 days.

I: How do you feel when you hike with people and when you do tree planting?

D: Camping with people there's no rules. We had a tendency to get a little bit more adventures than say, the guidelines.

I: How heavy do you carry when you hike with friends? Is it lighter than what you carry during tree planting?

D: Yeah, tree planting ... you were on one spot most of the time, so you set up your tent, and that's it. You were there for a long time.

I: Do you have to carry the heavy pack to the campsite? Or you have cars?

D: We're drop off from the van and set up the tent; and the van was gone.

I: Are there differences between this kind of carrying backpacks and the kind when you hike with people?

D: Yes. Camping with friends you're on the move every two nights, so you're packing up everything and you're going on. Whereas tree planting, you're stationary.

I: Do you usually put a garbage bag inside?

D: Not really, it's usually ... we check the weather forecast.

I: Do you do some special activities when you are backpacking? For example, photographing?

D: Yeah, there's lots of that. And I like to bring my harmonica, play a little bit of music. When you set up fire, it's nice.

I: How do you feel when you are hiking? What you are thinking on a trip?

D: I'm usually thinking: "Am I able to do this?" When I finished it, I feel great, it's an accomplishment. If it's not an accomplishment, I won't be disappointed. Then I will say to myself maybe I need to get more organized.

I: What kinds of accomplishment are you looking for?

D: To go more hiking to different terrains. I didn't do fall camping. I did summer camping, I did winter once, so I want to try fall and spring. I think it would be a challenge.

I: What are the differences between hiking in the summer and in the winter?

D: Oh, definitely you have to dress much warmer in the winter. Your tent is very important. I sealed it with ... and also I spread it. I have a big tart.

I: What else do you think beyond finishing an accomplishment when you hike?

D: Can my friends do it? 'Cause then it's like a team, if one can't make it you will kind of feel bad. 'Cause it's a team effort. I would say ideally I ... If I came by myself, I think I would have been dying.

I: Do you always hike with friends?

D: Yeah.

I: Do you share your equipment when you hike together?

D: Yeah, we share cooking utensils. We have a list of camping stuff to take. Some people would bring a can opener. So just little things like that, 'cause I don't have all those stuff.

I: You said you carry about a hundred pounds. How about other people? Do they carry the same weight?

D: Some people carry more, because some of them are actually bigger than me. Hundred pounds are too much, maybe take 20 pounds off. I am not sure.

I: How do you feel when you are backpacking?

D: That's quite a very interesting thing to say because at my long way camping, there is always good or bad. I have always learnt something, so I always have fun, even it was a terrible trip, 'cause I will always remember it.

I: So do you regard the purpose of hiking is for adventure?

D: Yeah. Adventure. And for myself, it's a little bit of self-enlightenment, or looking inside of myself. 'Cause in the city, you can't really ... sometimes with all the distractions of going to work, and families, and friends and ... I don't have this peace. Sometimes I get so caught up in the industry that ... or just society that I get lost. And then when I go camping, I see some very beautiful ... all the birdy, flowery or the branches, and it reminds me to keep my life simple, or I don't have to get so complicated. Sometimes I get so complicated that I get so confused. When I go camping, I get a little simpler. Of course, the adventure part is survival. There was a time there was a kind of dangerous...

I: What kind of dangerous was it?

D: We came across a bear. It was about 4 o'clock, the sun was down, and we heard this sound of someone sleeping in the woods. My friend was like, "Mark, there was a guy sleeping here." We checked it out and it was a

bear...

I: How did you feel after this?

D: This one was when I was 15 years old. That's a long time ago. I was scared for a bit, but camping was always part of my life. I enjoy the fresh air.

I: Could you imagine that you go hiking without a backpack?

D: I never went on hike without something on my back.

I: If there is a way that you can hike without carrying a large backpack, for example, you stay in a cabin every night, would you prefer to do that? Or it's not an adventure for you...

D: It's not as adventurous. When I know I am sleeping in a cabin ... usually when I go camping, I set up my tent, I don't know where I am. It's like a big surprise. That's the feeling I really need. It's like, okay, we got three more days before the camping is all over, the adventure part is, "Can we make it?"

I: Which one do you prefer, sleeping in the tent or in the cabin?

D: Definitely in the tent. It feels like you are totally independent, if it's the cabin I don't feel like I am independent, I am relying on someone's cabin to keep me warm, keep me safe. I like doing by myself.

I: What would it mean to you not to have a backpack?

D: For me I would like missing something, I would be losing my stuff, my supplies, my emergency kit, if I get cut...

I: Have you talked about backpacks with your friends?

D: Actually I do. Usually feedback ... we would say that trip was a big horrible trip...

I: Do you discuss about backpacks?

D: No, we don't. We don't discuss our backpacks.

I: So, the pack is not the point. The adventure, the whole trip is, but not the backpack.

D: No.

I: Do you feel like getting a new backpack?

D: Not really. I have a good one at home, Thunder Bay. Down here, I usually use friends'.

I: How do you choose a backpack if you are going to buy a new one?

D: I never really purchased a backpack on my own. If I need, I would check for water resistance. I like check the zippers, and how it feels. I like dark green. Dark green is my colour, so maybe it's just a silly thing. Price, definitely, I can't afford to buy the most expensive packs.

I: Would you say you are a backpacker?

D: Yeah, I am a backpacker. 'Cause I enjoy little tracks and long tracks. It's good if you understand nature. I had a friend who went camping with me. And just one day he had to go back home. I didn't know why, they don't understand nature.

I: What do you usually do in nature?

D: I listen to the trees, smell the air, look at the sky.

I: Do you try to recognize the plants?

D: Yeah, I look at the soil and grass, and the tree, tree bark, the branches, and I just try to understand...

I: Do you use your large pack other than camping, hiking, and moving?

D: I used it for airplane. I think my big backpack and daypack substitute the suitcases because it's easier to carry things by them.

Participant: **Elizabeth ***

Note: * Participant's real name was changed; I = interviewer; E = Elizabeth.

I: What comes to mind when you think about backpack and backpacking?

E: Wilderness, fun.

I: How about backpacks?

E: My backpack's comfortable. But might be after about four days ... In the first couple of days backpacks are heavy. It feels very heavy. But about the third, forth day, the pack becomes a very real part of you, you don't seem to notice the weight as much.

I: You said that you have used five backpacks in your lifetime, can you describe some of them?

E: The first backpack was an external frame pack. And actually I still have it. For the purpose that I used it for and the trail I was carrying it on, it was a good pack. Except that it didn't have as many pockets as the internal frame one. It didn't pack as compact as an internal frame pack. I had to use a lot more ropes to tie things down, or it would dangle all over the place.

I: When did you get that one?

E: The first backpack I got was about twenty years ago.

I: How about that external frame pack? Is it older than the internal one?

E: Definitely, my internal-frame one was about three, four years old. The very first one was about twenty years ago, but I used that for quite a few years. And I had borrowed packs; I had rented packs, until ... and then I studied about packs. It took three years to make up my mind before buying that internal-frame pack.

I: Did you buy your very first backpack?

E: Yes, I used it for a period about ten years.

I: At that time, how did you decide to buy that one?

E: The external-frame pack? Well, based on other people's opinion. And acutely it was bought for me as a gift.

I: Who bought it for you?

E: He was a boyfriend. It was his gift to me. So I used it for ten years...

I: How about your second one?

E: Second one ... I borrowed people's pack. I borrowed a Serratus pack. but I believed those are designed for men, I don't know if they have the one designed for women. I do use a Serratus pack. I used that pack for the West Coast trail, a camping trip, and I came back with a lame shoulder. 48 pounds that I was carrying over that time. And the pack was not getting lighter on the West Coast trail, because everything stays damp and heavy. The food gets lighter but your clothes get damp and heavy. But I did have a lame shoulder because it was a very poor pack, and it rested on my shoulders a lot. And it had 1500 meter of rock to climb up with the poor daypack. That was my determining factor to really study packs and find myself a good one.

I: Can you describe your other packs?

E: I used travel packs; they are very uncomfortable. They are not designed for hiking. And also I have day travel packs. I remember I was using Serratus pack and a travel pack, and my external pack.

I: When did you get the external one?

E: The external one was 20 years ago. The packs I have used in between that and before this one ... I used Serratus, and the external one, and the travel pack, but only for travelling purposes.

I: Do you remember the brand name of the external-frame pack?

E: No, but I can pull it out right now and show you. Oh, I have packed it away. It would be too hard to get it.

I: Is it the one your boyfriend gave to you?

E: Yes. And I was a very inexperienced backpacker, so I know nothing about packs.

I: How about your boyfriend at that time? Is he an experienced backpacker?

E: He had an external pack, too. And he wasn't that experienced about backpacking. But ... the pack was the pack.

I: How about after the Serratus?

E: After the Serratus, I decided to invest the pack that I have now, which is called the Dark Horse. It was manufactured in Calgary, Alberta, Canada. The Serratus one ... it did not fit well on the shoulders, and I found that the hip

belt was sliding a lot, and that's why the whole pack was resting a lot on my shoulders that weight throughout the trip.

I: How about the travel packs?

E: I have used two different travel packs, the Serratus, the external, and the internal. I borrowed one travel pack, and I bought one.

I: How do you feel when you use the travel pack?

E: When you travel, you pack quite differently. When I travelled to Mount Everest, I had a travel pack, and I had a duffel bag. And I used both. I had porters to carry my stuff to the Base Camp.

I: Why did you start to do hiking? Is it because of your boyfriend or because of other reasons?

E: Yeah, definitely. My boyfriend used to hike with me.

I: What have been changed before and after you start to go hiking?

E: The changes at me over the last 20 years were the comfort in backpacks ... not hiking in jeans ... the clothing, and rain gear ... that sorts of things. You have the right equipment to make your trip more comfortable.

I: Do you use your backpack for other activities?

E: I wouldn't use a 360-dollar pack for laundry. I believe in buying a quality thing and making them last for a long period of time. You spend one hundred or two hundred more dollars for true quality stuff. So I don't have to rebuy it, and I spent three years studying equipment before I bought it.

I: What were your concerns when you bought it?

E: My biggest concern was the result of my lame shoulder on the West Coast trail. With 48 pounds resting on my shoulders, on that day, I decided to buy something that sits on my hips. I chose the Dark Horse pack, this one.

I: When did you get this?

E: I actually got that in probably about 94.

I: Are there any special experiences or things related to this pack?

E: This pack has a lot of great features. First of all, I had to decide I want a pack that's going to along with a three-day backpacking trip or something along with a ten-day backpacking trip. So the first thing I looked at my pack was the size. And this is a 75-litre extendable to 90 litre pack. It has got a lot of compression straps on it, so I can make it a condensed pack or put a lot more things in it that's enough for expedition. Another feature that I learnt a lot about the packs was the pockets on the side. Instead of stopping and taking your pack off, you can reach your pack and get your water. So that's a very important thing you want when you are hiking or backpacking. It's got a detachable top, sort of like a day pack, when you leave the pack behind and go on a day trip ... When it's on ... It's got a lot of features, sort of a map pocket you want to get at very quickly. You got these straps on the top, you can put your Therm-A-Rest on the top, or some bulkier items. Or your coat that you weren't wearing ... you also get a separate piece called a gear jammer. The gear jammer is great, it helps connect the pack, you can put clothes that you are drying behind it, as you walk throughout the day.

I: Did it (gear jammer) come with this pack?

E: No, this is a separate feature. I bought it separately.

I: When did you get this?

E: I remember people commented on how big the pack looked, and it looks like a big pack because it's a bright colour. But I still love the colour; it's a great colour. So I got it something black ... that was some sort of camouflaging some of the bulky looking stuff, and again sort of like a gear jammer, as it's supposed to do. And then it's good for dropping in things, because it's a mesh.

I: Were you concerned about the colour, or price at that time?

E: Concerned about the price ... no. Downhill skiers pay a lot more money on their gear than I do on my backpack. Probably ten times more at that sport.

I: How about the fashion and style?

E: I just wanted comment ... it's wide at the bottom, but I like that. 'Cause I have an expedition sleeping bag, and it needs a lot of room on my pack to put the sleeping bag on that. One feature that it doesn't have which I would be enjoy is the zipper, so that I can stuff my sleeping bag in the bottom. So it's one feature I would like it to have. It's top loading, but side loading, too. There is a side zipper, but I never use them. That adds to the weight, I really don't think it's necessary.

I: Did you use it (the zipper) when you are travelling?

E: I have never used it for travelling. But you are right, it (the zipper) could be a good thing when you are travelling if you want to get out things in a hurry. So it has a full zipper, but again it's its weight. Now if I were rebuying a pack, I would look at the new material, a kind of lighter material. This is a six-pound pack, so I can reduce that just by the material. This is a strong pack; this pack would last a lifetime. It has a lot of compression straps ... load lifter straps, which I used a lot when I was backpacking. It eases the load up of my hips for a short period of time, to give my hip a little of rest. The shoulder straps are fully adjustable. And I have got a lot of this in between my shoulders. It rides above the shoulders, so I don't have that sitting-on-shoulder problem any longer. I have got an adjustable strap, which I feel very uncomfortable. I don't usually use it, and I find that as I was walking, I just hang it on the side of my shoulder straps. It has side compression straps, which are very useful. I used them for tent poles and stuff like that.

I: Did you get this (a catalogue) when you bought this?

E: No, I think I got this at Camloops ... And, it has a good waist belt, and this is a totally detachable waist belt.

I: Did you know this feature before you bought this?

E: Yeah. I was spending three years studying packs before I bought this. I wanted something totally adjustable, and suited to my female body. That pack I used for West Coast trail was designed for men. This one was designed for women. The hip belt ... some women have bigger hips than others, so you can buy different sizes of hip belts. These are interchangeable, and they are very thick, and comfortable. I packed 55 pounds in this, 55 pounds on the Cherokee trail. That was a five-day trip. And it was still very comfortable. So it has lots of padding, lots of back padding. Under the padding ... totally adjustable straps everywhere, and it has an aluminum stay, it has formed to my body...

I: When you bought this, what were your major concerns? For some people, they would prefer to have convenient access over comforts...

E: For me, I would have to say comforts. When you are backpacking, you only have this on your back, it's not mean you got a lot of the time to adjust the things that you are carrying. It's not like you are in big hurry to go anywhere. So I would rather to have comfort. And if I got the hip belt and not having the easy access to the water bottle, it's based on the comfort feature of this pack.

I: When you said comfort, does it include convenience?

E: The only convenience is the water, I think, and actually the shoulder straps are very convenient, too. If I want to give my hips a little of rest, I just pull the straps on the shoulder.

I: You actually pull...

E: Forward. So it's got straps and everything. And another important feature ... it's made in Calgary. That was a key concern when buying the pack ... is finding the parts for it or getting it to repair. If I was considering a pack that was made in France, that would be more difficult for maintenance of the pack.

I: Did you repair it or change anything on it?

E: No, this pack is ... I got the gear jammer. That's the only thing that I changed the pack.

I: Do you think that you may have some different uses comparing to other people?

E: A lot of packs out there don't have a water bottle, compartments on the side ... I had people stop and compliment me on this pack. They stopped and looked at me and said this is equivalent to the North Face pack. And he looked at all features and he could tell me it's ... pack. You want to be careful that you don't want to get so many extra convenience because everything you get adds weight.

I: If you are going to buy a new one, what will you look for?

E: If I buy another pack, I would go for that ultra light material now, the micro fibre. It looks a little bit shiny, it has little squares ... The colour, I have no problem with colour. I think it just being pushed to go lighter.

I: Do you have a plan to buy a new one?

E: No, this one would last a lifetime. I have really no need to buy a pack. I would be pushed to buy lighter clothes, and lighter gear.

I: Why aren't you concerned about upgrading your backpack?

E: Well, first of all is the financial aspect. And I like to really think through of my purchases, so they last a long time. So, maybe after 20 years I will consider to buy a new pack. It will last a long time if I go backpacking 3 or 4

times a year. I am not interested in upgrading any stuff.

I: Could you describe how you use your backpack?

E: I used it from a 2-day to 10-day backpacking trip.

I: Did the weight go lighter if it was a shorter day trip?

E: No, I find myself a lot in leadership role in a lot of trips when I go on. Sometimes I take extra stuff. The first-aid, few extra covers can be used for other people. So sometimes my pack is heavier than others.

I: Did weather get you into any kind of problem?

E: The weather? No, I made a rain cover for it.

I: You made it?

E: Yes, I made a rain cover. I had it here, but it just a nylon ... with a plastic fit to it, so it fits.

I: Why did you want to make a rain cover by yourself?

E: Because it is a big pack and I couldn't find one for this pack. I wouldn't be able to find one. It was probably four years ago, I actually ordered the biggest one but it was still too small.

I: Did rain cause any problems before you had that rain cover?

E: I made the rain cover ... I like to go prepared. I made the rain cover before I used the pack.

I: Where do you put your rain cover when you are backpacking?

E: Where you have quick access. So you can get it quickly. I put it on the top here. I put the rain gear on top.

I: What else do you put on the top?

E: Maps, suntan lotion, hat, handkerchief, rain gear.

I: How about your camera? (She showed some pictures that she took during hiking to me before the conversation.)

E: I hang it up on the strap. It had a pouch.

I: What kind of camera do you have?

E: I have a Canon zoom. It wasn't that light, I would probably get a lighter camera, too.

I: When you are hiking, how do you grab your camera?

E: Right here, I put it right here. I just kind of hanging it right here in the pouch.

I: Does it cause any problems?

E: It flaps round a little bit. I would like it to be a little more secure. They should design ... there is an idea for design. They should design a camera pouch on the pack, so the water bottle ... water pouch...

I: Do you use a tripod for taking pictures?

E: No, I don't.

I: I have seen one Sweden-made pack that has a small pouch on the hip belt.

E: Oh, I don't know how comfortable with stuff dangling in front of me, because ... you know that water bottle carrier, the patterned one, I used to have that dangling in front of me. I couldn't have that, I just couldn't have one.

I: What are the things about backpacks or the experiences related to it that are special for you?

E: Well, I like it to have a handle ... This one, one more feature I like is I can lift this up, onto my knee before putting onto my back. I like this feature right here. Other packs, well, I just think about my external-frame pack ... It looks funny. You have things dangling all over the place. I can't secure it. I can't secure it really well, so things are moving around. It is almost like a killed Billy, when you are carrying this. We were stopping over and over, like backcountry pan handlers or something. It just looks funny. As I said everything I like to be compact.

But for the external-frame pack, it has a lot of compartments ... It does. But it's not convenient. Because if you have things that have so many compartments, you have to hang it on the tree, a bear pole, you have got a lot of compartments that you have to get out. You have so many zippers ... I think it's almost inconvenient.

I: So that's why you have a top loading backpack, you don't care about the side pockets...

E: No.

I: In terms of convenience, you mentioned quick access to your rain gear, water bottle ... How about snacks?

E: Usually when you want a snack, it would be a good time for a break. Sometimes I carry a little fenny pouch. I used it instead of the external strap. I put that little fenny pack in front of me, so if there are things I want to get out really quick, I can put into it.

I: But you said that you don't like to have things dangling in front of you.

E: No. But I have done that, but I don't like it. I do have a fenny pack.

I: Where do you put those snakes?

E: On top. Probably on top. If I want it hurry, the power bar or so.

I: Do you use the chest strap?

E: No, I don't like it. I just find it uncomfortable. I don't like something compressing against me.

I: Why don't you just cut it off?

E: If I want to resell that pack, if somebody else like that feature ... No, it's not that much adds the weight, I can keep it on there.

I: Will you sell this?

E: It will sell. It has a good resell value. And I take great care to my stuff. I am not interested in selling it now. I am interested in getting a lighter tent, a lighter sleeping bag. Maybe a lighter jacket.

I: Why do you still keep the old external-frame pack?

E: I think I might have stored it here somewhere. It's pretty funny.

I: Why do you still keep it?

E: To laugh at myself, and all the mistakes I had with that pack. The way things just hang on the pack, things dangling all over the place ... learning from my experience.

I: Do you keep other packs as well?

E: Yes, I have my travel pack.

I: You said that the external-frame pack was a gift. Does it mean anything to you because of that?

E: To be given as a gift, well, my first backpacking trip was pretty exciting experience. So I can tie that pack to the.. "hey, I went on my first backpacking trip." So, yes, it would have meanings. That can be one reason why I'm still having that pack. That was my first trip.

I: What has backpacking changed your life?

E: Considering I have been on Everest, and Kilomigiro, which I never thought I would do, it's getting me more confidence in other areas of life. I have been teaching and training to know that I can physically endure some other things that I haven't been trying. Backpacking is a confidence builder. To be able to go out there and survive, with the minimum things on your back, your food, your accommodation, and everything just on your back, it's an incredible experience. To know that I can do it, to do some of the hardships ... I have in hails, snow, rain, storms ... you name it, to be able to keep going and persevere. It gives you confidence in other areas of life.

I: If there were a way that you can go hiking without carrying so heavily, would you prefer to do that?

E: Well, backpacking takes a lot physical endurance. And it's not something I do a lot about backpacking here. I want to complement backpacking that are day-hiking trips. But no, I wouldn't backpack all the time. It's a hard physical work; and if you are not doing it everyday, it makes it hard. It's tough to go out there and do it all the time.

I: When you used your friend's pack, how did you feel?

E: Between the Serratus and this one? Comfort features.

I: What does it mean to you to have a backpack?

E: It means I should use it. It means ... for me to invest that much money on equipment, I should get out ... It's motivation. It motivates that ... it just has that, say, hi, I am going. I haven't backpacked for a year and half now, and I am ready to go again. So, there's a lot of enjoyment, and physical endurance. That's the hard part of it. There are a lot of good things about it, too.

I: I didn't really get your point. You said, it's about motivation...

E: To have a good quality backpack, it motivates me to plan trips. To use it, instead of sitting there, like trunk, stored away, and forget about it. Okay, I got a good backpack. I want to use it.

I: It's interesting. Can you talk more about this concept?

E: Well, I tie that backpack into pleasurable experience. While that's difficult, you know, physical endurance ... so that I can't do it all the time. But to know that I have that equipment, I have it, let's go! I don't have to worry about renting it, when things don't fit properly, I've got a comfortable pack. I am ready to go, let's go!

I: What other motivations do you have that encourage you to keep backpacking?

E: All the peace and serenity. Being close to nature. To get away from people. I go backpacking to get away from people. I don't like to go where there's a lot of people, but I do like people. I want to go with people, but not so

many.

I: Do you share your gears with friends when you hike?

E: There are a lot of beginners that I am taking. They have this perception that all they have to carry is the few things they want to carry. They don't understand the concept of real sharing. You got to carry your share. And I had some problems to get people to carry their share.

I: Have you encountered some situations like some people walk faster than others ... and it causes inconvenience...

E: Definitely.

I: So did you have troubles setting up tents or not being able to cook, things like that ... ?

E: When you are sharing equipment ... Well, that's no big deal. If I take groups of five, I don't like to go beyond five or six people. I like to stay in an agreement that we don't stay any farther than an hour apart; it's not safe in a backcountry. We all know that. So I encourage people to team up with somebody.

I: Have you got into any dangerous situation?

E: We have run into bears. You just quack and make noise. You just keep on going. Bears don't like people. You probably heard a number of times that they only bother you when there's something really wrong with them or you get between a cub and the mother. Other than that they don't bother you.

I: Have you run into any dangerous situation when you're climbing, and it's cold or snowing, or raining, things like that?

E: The worst thing that ever happened to me didn't have to do with pack. It has to do with the stove. I had a little Peak 1, and I filled it up with gas to the top; filled it right up. I didn't realize that gas expands with altitude. So when we got to our destination, it was on the Sky Light trail, I was trying to pump air into it and get it going; and then the gas spilled out onto my hand, and 'till I light it, right away the ... my hand was in flames. There was no permanent damage, I just finished washing my hand and putting some lotion on it, so the lotion really protected my hand from getting damage. I just rolled myself around and the flame stopped and then I put it in cold water stream. Just blister, big blister. That's the worst thing that ever happened to me! Backpacking! And I have done a lot of hiking and backpacking. And I have experienced heat exhaustion. I have travelled with one other girl friend before, she is taller and faster, and that's the problem. I can't go with somebody that's damaged faster. And it was really hard for me trying to keep up with her. So I struggling heat exhaustion and trying to keep up with her, so ... And hyperthermia. Well, I came close to that one. I was going from heat to rain to snow. So other than that ... minor things. But you have to go with an attitude "hey! I can overcome with anything!" you know? Trying to as prepared as you can for anything to happen.

I: Do you have some spare kits with you, or first-aid kit?

E: I took forty hours of wilderness first aid, and I have to renew that pretty soon. I can't be more prepared; and I am actually taking first aid this weekend, standard first aid. I like to take the wilderness first-aid course because it better prepares you for that environment.

I: Do you actually bring some medicine with you when you hike?

E: A small first-aid kit, yes. Well, reasonably small.

I: Do you also bring some spare equipment with you?

E: If I am the leader of a trip, I try to take whatever I can. I take what's recommended. Maybe a few extra band-aids.

I: How heavy do you usually carry?

E: I have not got lower than 38 pounds for a two, three-day trip. That's the lowest I can go. I have a heavy sleeping bag and this standard pack. So with the gears that I have 38 pounds is the least. Ideally, some of the equipment stock they have there now it should be down to 32 pounds. But that takes a lot of money. The lighter you go the more money it costs.

I: Have you talked about packs with friends?

E: Yes, whatever I can. People ask my advice on them. And I try to refer to what I feel as the best pack, and the knowledge that I have. I am upgrading my knowledge right now, in case people ask me. I always do that in the spring.

I: How do you upgrade your knowledge about packs?

E: Today I got this book. Research on the internet for packs. There's a lot of information on the internet. Gear guide, just came out, "Backpacker." And when I had a vehicle, when I was going to school, I went to the outdoors store. 'Track 'n' Trail,' "Totem," "Campus Village." And kind of looking around at prices. Read review and stuff like that.

I: Do you do it for other people or just for yourself?

E: I do it for other people, because I already have stuff. This is my hobby; this is fun for me. This is not hard work. This is fun. I enjoy doing it.

I: What is it like to be a backpacker? Do you think you are a backpacker?

E: Yes, I am. It took a lot of years. I don't know everything. Actually I have gone with people with very comparable experience. I would like to go with people with more experience than myself. So that I can get ... I can learn more. What I like to do is to learn more how to survive, wilderness survival. I have taken some training, how to build shelter and stuff like that. I would like to go with somebody who knows more about that.

I: Have you got some experience about going out with people who are more experienced than you are?

E: Not very many. I should go with comparable. Unless I got a trip with beginners, then I learn more experience.

I: What if you lose your backpack when you are hiking?

E: If I lose this good backpack?! Then I have an excuse to buy a lighter one! But until then, I can be happy with this one. You never travel ... you never go anywhere worrying about losing things. It does happen. Things are replaceable. You should never go that attached with things.

I: You just let it go if you lose it?

E: Let it go. Chance to buy something new!

I: What if you accidentally lose it in the middle of a trip?

E: That's why I want to learn more wilderness skills. Shelter building and rescue.

I: When did you start to have this idea to make backpacking as part of your life? Or part of your profession?

E: I was in a paying position once leading people backpacking.

I: When was that?

E: 1985. I was a wilderness living leader for a camp, kids camp. So I took teenagers backpacking ... junior high and staff ... training weekend. But I was response for ... back to 1985.

I: You have done backpacking in many other countries. Does it have any difference on the way you travel, hike, or do with people in different countries?

E: With people? My opinion on that is quiet! You travel, listen, watch, observe ... try to say and do the right thing in different cultures. I am a pretty quiet traveller. I am out there to learn and experience.

I: Do you adjust your equipment according to different destinations?

E: Definitely. Mount. Everest was cold. I took a lot of stuff. And people laughed at me at my expedition team because I was so prepared.

I: How about other people in that trip? Did they suffer from their insufficient preparing?

E: Yes, they did. I followed all the rule. I didn't get sick or pick up any bugs. I was very warm. I saw people get sick, not having enough warm clothes, that sort of things. My leader even comment on how ... and a doctor even comment on how prepared I was.

I: Why aren't they well prepared?

E: We paid a lot of money to somebody to lead us. And I guess that's why people think "well, I will go do this and somebody else will take care of me." I don't know. But when I was out there, it was physically demanding. Hiking, fifteen days of hiking, hundred and fifty kilometres. I had to be prepared.

I: But you do not have to carry everything by yourself.

E: We have porters carrying. We're just carrying our daypacks.

I: It's still very demanding just by walking.

E: Yeah, still. Very physically demanding kind of trip.

I: Does the fact that you have porters influence how you pack your gears?

E: Yes! You take whatever you want! You take more things, bulkier ... I took some really thick fleece pants to keep me warm out there; it was -18 up at Base Camp. It was cold, and we didn't have heat.

I: How about food?

E: Actually I was hungry. When you up at the altitude ... And I had a little bit of cold. But I still strong enough. I was prepared for the trip. And you move in snail's path on that high up; you move very slowly.

I: How about other trips in other countries?

E: I was in Israel for five-week study tours. You don't want to walk in there, 38 degree heat. That was unpleasant. Kiromijiro, I went up on the third at that time, 8500 feet. I had more problems, with altitude, headaches, with the cold. I had a lot more time to adjust my body on Everest. It was a very well plan ... very good trip.

I: Do you have some overseas hiking experiences without porters?

E: Backpacking without porters? No, I don't. Just the West Coast trail, and Alaska. That was my heaviest pack, 56 pounds on that trip. But I made it, five days. That was a great trip. There was three hours that we actually had to crawl all over to get to the summit...

I: How do you feel about the pack at that time in Alaska?

E: I felt comfortable, it was part of me, it was good. The good thing about internal-frame pack is it stays close to your body when you're moving, so I didn't have a problem.

I: So it didn't really bother you even in that situation.

E: No, no. This is a comfortable pack. I can pack 60, 70 pounds that'll still be comfortable.

I: How about other people? Did they feel the same way?

E: Everybody experienced their little pain in different ways, you know. You could see on their faces.

I: Did you feel pain sometimes?

E: Maybe overly tired on the extra hot day, packs not fitting right ... that sort of things. When I lead trips, if people have problems with their packs, I would stop and readjusted the pack for them. I will make sure that I go on an easy enough trip that these people can have good enough experience that they will do it again. I do a lot of pack adjustment.

I: What are the things about the pack that you're really concerned?

E: Well, hips and shoulders. First of all ... The first thing I look for is to see how it sits on the shoulders, and then hips. And then make sure I feel the weight at these areas...

I: How about the way of loading?

E: When I do the beginner backpacking trip, I do a workshop before we go. I take them out to check the crew and I will show them how to pack a pack. And throw one on mine, and we will go for a ten-K walk. So they have a good feel what it is like.

I: How do you pack a pack?

E: The heavy things in the middle. I put my sleeping bag in the very bottom, heavy things in the middle, clothes on top, things I need in a hurry on the very top.

I: Where do you put the cooking utensils?

E: I put them in the middle, heavy stuff. The tent, poles on the outside, I strap them on the outside, Therm-A-Rest on the top.

I: Does tent cause any packing problems? Because tents and poles are long and heavy...

E: I try to balance it.

I: Does the long Therm-A-Rest cause any problems?

E: It does make it bulkier and wider. Well, I have only been on one trail that I can remember back to 1984. There was a really narrow ledge to walk along trail. That was in Birk Lake, but I remember I had an external-frame pack and I had this great big blue foamy on top of it; and it was scraping along side, and the trail was so narrow, I was getting nervous. Now I fully understand the idea behind the internal frame pack is to keep it close your body. This one is wide, but it's so close to my body. And I try not to pack anything too wide.

I: Did you make any adjustment at that time?

E: With the external-frame pack? No, I didn't. I just kept going. I tuned in later on. I made a lot of mistakes.

I: What kinds of mistakes?

E: The way you load the pack. Basically the way I loaded it and brought it down ... it would come loose a lot, say the sleeping bag on the outside would come loose a lot, to tie things, keep secure. I am pretty happy with this one. One disadvantage of the internal-frame pack though is when it's close to your body, and you perspire, you sweat a lot. But they are designing packs now ... you notice they got certain light ribbing, so that you have more

air flow, so that I think that's one of the feature I will look for, too. But I usually take extra T-shirts.

I: Do you have anything that's beyond the questions I asked and you want to talk about?

E: About my pack? "My" pack. Ownership, notice that? "My" backpack! Any concerns? It's funny, I just remember the one about ribbing and the air flow, that would be nice to have something ... material, the camel pocket...

I: Is it important for you to have your own gear?

E: My own gear, yes, it is. Because if you rent a pack or borrow one, you are not ... like I won't lent this pack out. It's conformed to "my" body, and the hip belt, even. I believe it's forming to my body; the aluminum stays are forming to my body, I would not lent that pack out.

I: How about other equipment? Will you lent other equipment out?

E: Yeah, no problem. Other equipment, yes, but not my backpack. That's part of me. And I try to explain that to people, and I explain just that, those aluminum stays form to your body, the padding...

I: You said "it's part of me," can you describe it?

E: It fits comfortably; it loads as I walk; it goes with me. It's part of me.

I: How do you conceive your pack when you are not using it?

E: If I am not using it, I still know it's there and I know the benefits are ... there's a lot benefits for backpacking. It's my escape from the real world. I am willing to put the effort into it; I put the trip together, and like this summer I am planing the trip that we are going.

Participant: **Frank ***

Note: * Participant's real name was changed; I = interviewer; F = Frank.

I: Could you talk about your backpacks?

F: I'm hoping to use it for my weekend backpacking use and for my climbing. But what I noticed was because it is a weekend backpacking pack, so it got a very long back plate to it. So the back plate comes up very high, so when I am climbing with the helmet on, I can't look up, to see the top of the climb. So the new backpack I used got ... It's a climbing specific backpack. So it is lower in the shoulder high, and that's a big reason why I bought my last one.

I: Is it the North Face?

F: No, it's Arc'teryx also. It is the Arc'teryx Nozone. My North Face pack is just way too big for that.

I: Do you keep all of them?

F: No, like right now, six is the most pack packs I have owned. And I will probably sell a couple or give a couple away, you know. I give packs to my sister, to my parents, they enjoy sometimes ... sometimes friends who like them, you know, I sell them. You know, I can't use six packs at the same time. Right now I don't need all six, I think probably I will keep four. Two I use just at a regular basis, and the other two just ... are there.

I: Why do you keep packs with you even you don't use them?

F: I don't know, I guess, I just am attached to them. I have used them a lot. I just haven't thought about how to do with them. Two of them I haven't been used for probably four months, but I probably send one to my parents in Ontario, let them have one. And then I think I have a friend who wants to buy the other one. I just haven't given them much thought.

I: Can you describe how long have you used those packs?

F: Packs like the North Face or Arc'teryx they have a lifetime guarantee on them.

I: How long have you used them and how long do you expect to use them?

F: Well, my first pack Kesley? That one lasted for years, and then the shoulder strips ripped off. That one I used at 12, 13. The quality wasn't the greatest, but since then I haven't worn out a backpack. ... The Kesley lasted probably for 8, 6 years. And I used it a lot, travel. It has been all over the world. I actually had left it in Spain, 'cause it's just totally broke.

I: What did you do at that time since you didn't have any backpack?

F: No, actually I was travelling with a big group of people for the World of University games, so I just stuffed everything from that pack into my North-Face backpack. That one was with me as well. And into my ski pack.

I: Do you remember when did you get your North-Face pack?

F: Yeah. My North Face I got eight years ago.

I: And how did you get it?

F: Actually at that time, I just came in off the street, and bought it ... here! Yeah, I bought it here in this store (Track 'n Trail). I always have known the people of this store, and I was going to school just outside of Edmonton. I knew it I needed a new backpack, so I came in and bought it. And, Yeah, it's roughly eight years old and it's still in great shape.

I: When your Kesley finally broke, you moved your stuff into another backpack. Did losing your Kesley pack make any difference in your life or the way you did things?

F: Well, it did for a while. It took me a year to replace it. The Kesley was 40 litres in size. I took it with me on the plane. I took it with me for a short weekend trip. Afterwards, I used the North Face more often, you know, it's just a lot ... bigger!

I: And what are the differences? How did you feel? And what have changed?

F: The North Face is probably this small, no, it's as big as me!

I: Then what did you use it for, say, weekend hike? Did you use the North Face?

F: No, I guess I must have bought a new pack when I came back to Canada. I couldn't use the North Face pack for the same thing I used with the Kesley for, 'cause the North Face just too big. The North Face is just as big as me, it's a-hundred litres.

I: Could you describe more about the differences when you use different backpacks?

F: Yeah, would you like me to grab two to show you?

I: Do you have them with you?

F: Yeah!

...

F: So this is Solomon backpack, and it is similar to my Kesley. In the sense it was pretty much ... It's a forty-litre backpack, and it is very basic. It's just a sort of a basic in shoulder straps, a bit of hip belt. My Kesley doesn't have this, it looks even little more basic. But it was very similar to this one. You know just designed for forty litres, and maybe thirty pounds of weight. So, it's just a very basic backpack, you know, small straps inside, like that is great just for day trips, stuffs like that. And then my North Face is very similar to this one. Mine is even bigger than this one. This one is 80 to 90 litres, and now it has very big compartments to it, more like my travelling bag, my big sort of expedition bag, I guess. The shoulder straps and hip belts are designed to carry a lot more weight. They're also interchangeable, so I can adjust these...

I: Did you change your hip belts and shoulder straps by yourself?

F: No, they did here at store based on my body size. So they fit, and they come to different sizes. And it's just designed to carry a little more weight.

I: Do those belts fit very well?

F: Yeah! Yeah.

I: Did you have that change when you just bought it?

F: Yes, when I bought it. Whenever you buy them of this size, they try on different shoulder straps and hip belts, and find out what size fits you best. And for ladies, it even has slightly difference. With the men's (shoulder straps), the men's are cut completely straight, with the women's, they usually come down the curve to it. So it's just designed to handle a lot more weight. And my North Face, I had so heavy that my friend has to leave it put on my back, and then I can carry it. When it's on my back I can carry it, but I can't put it on my back 'cause it's

I: Do you use it very often?

F: No, that pack ... for the last five years, I have used it probably for a hundred days ... No, probably fifty to sixty days.

I: Was it Mostly for travelling?

F: Yeah.

I: Why did you choose that large-size pack when you bought it?

I: Well, I had plans of travelling in Europe and stuff like that. I just needed something, you know, you need something that big to travel for a month in Europe. Plus, I knew I needed something that big for tree planting..

I: You did tree planting?

F: Yeah. So I throw all my stuff just in one bag. And I didn't have to carry two or three bags. And also for visiting my parents in Ontario, if I go for two weeks, I'll take that instead of a suitcase. Just as easier I can, you know, carry it right in to the airport, and then just pick it right back up to the luggage to throw onto my back, I don't need to use one of those dories to carry around or anything. So I just find it convenient.

I: And then you have the Arc'teryx pack.

F: Yeah, this is the new Arc'teryx, the one I just bought. I have one exactly the same.

I: This is the newest of your packs.

F: Yeah. And this one is designed for climbing. So the height of it is very short. Like this is the top of my shoulders, and this is the top of the backpack. The hip belts are designed to carry my ice axes, it would fit in here. And my caribbeaners and quick trousers and climbing protections would hang off this. So if I am doing a long climb and carry a lot of gear, I can carry this with me. It's also designed that my ice trosses can fit on here, my crane on. ... this material doesn't cut, so sharp crane doesn't cut through it and wreck my backpack. And then there's no straps on the side here to get caught on stuff, so it's very slim. ... They're all internal. They go inside. And that just makes things very streamline.

I: Why did you buy this new one?

F: I tried many other packs...

I: Why did you want to have a new climbing backpack?

I: Just for function. Like my climbing backpack, I bought and I needed it just for 'climbing.' Where a regular backpack doesn't work as well. So, like this backpack wouldn't work, 'cause it's too big, it's too heavy, it's too height. Where this pack is designed for it. Now, not every climber buys just one backpack, but it means a lot to me. So, it just means I can climb harder, and I don't have to ... I don't have to fight with a backpack that's not ... designed for it. ... Yeah, if I have a backpack for exactly what I want to do on that day.

I: Can you remember some inconveniences when you used other backpacks for climbing?

F: Yeah, you know the height, the height above the shoulders...

I: But you still use them before you have this one.

F: Oh, Yeah.

I: How do you feel when you're actually climbing. Does the pack bother you?

F: No, no, I guess it's part of climbing to have something haggling off your back, and it's just a matter of ... You know, I always prefer not to have anything on my back, 'cause it's more weight, it's more bulk.

I: If there were a possibility that you can climb without a backpack or just with a very light backpack, would you do that?

F: Yeah. Oh, yes. And that's why I ... this pack is lighter than my other backpacks. You know, it's designed more for climbing. So with essence, because the pack is more specialized, I know it's at least ... so I don't feel it on my back as much. I don't hit my head on the top of the pack. I don't have these straps occasionally getting caught on stuff. It's just very counter to what I am doing, and it's getting closer and closer to almost not even being noticed again. And that's ideally ... you know, what the backpack manufacturers are striving for is that people don't notice or feel it on your backs. You know that's their no. 1 goal for people not to notice that they're carrying one. And that's why I ... like this pack. It has a hundred pound of weight in it, and it's heavy, but when it's on my back, I don't feel it that much. Where I had other backpacks, when you have hundred pounds of weight in it, and it cannot be carried. But for this one, the weight is distributed so well that I can carry it, because all the weights are closer to my natural centre of gravity.

I: Can you provide me more details about the inconveniences...

F: A big thing to me of a backpack is fit, and the external properties of a backpack. I am more concerned with the fit of the backpack, how it carries the load, and how everything seems on the outside of it. Where with a lot of people they are more concerned about sort of the features inside of the backpack. You know, where they can put their tooth brush and toilet trees ... where they can pack their sleeping bags. I don't really care, I just stuff everything into it. I just stuff all in. But with packs that are bigger, like this one I can quickly undo these clips, and that I can open up the zipper here and get into the bottom compartment, which is a nice feature. It doesn't mean a lot to me, but it does mean a lot to other people., because when I start carrying my backpack, I don't stop until the end of the day. So I don't need to take stuff out, for other people they might need to take breaks...

I: Don't you take any breaks?

F: Not almost have to. I want very tight ... I want to get to where I have to go as quickly as possible, and some limits already have by timing and daylight. You know, where other people will do, say 20 km in a day, I'll try to do 35, just 'cause that's what ... just interests me more instead of sort of taking my time. So usually when I get to camp I just unload the whole thing and then reload. I don't have a problem. But other people like backpacks because of the zipper there, or ... like pockets on the side.

I: You don't care...

F: No, like one of other backpacks I have owned is a travel backpack, Eagle Creek. And it's designed specifically for travelling, you know. It's got a good hip belt system, but not as good, but it also folds down for shipping. And it's got a lot of pockets, you know, one pocket for your pens, one pocket for your shirts, stuff like that. And I don't really use it, so my sister now uses it. I have lent to her, 'cause she travels from Ottawa to Toronto all the time. She gets more used of it, she really likes it.

I: How about your feelings when it comes to experience among different backpacks?

F: I like some of my backpacks better than others, so I use them more. I feel more comfortable with them.

I: For example, you said that you have attachment to those two backpacks, although you don't use them very much. Can you describe that kind of the attachment you have?

F: Like the one backpack I travelled in Europe for a whole month last year and...

I: Which one was that?

F: That was my North Face. And the other Solomon backpack that I have, is very similar to that smaller one. And I don't use that Solomon backpack that much any more.

I: Is it a climbing backpack?

F: No, it's just a regular backpack like yours.

I: When did you get it?

F: That one has been the backpack to replace my Kesley, so probably about seven years ago. That one I use for, I don't ... I've used it very well, I don't care if gets ripped or if it gets damaged. So like that backpack I just used for day trips, or trips where my stuff gets throwing around, you know, where I don't really care. So if I go visiting friends in Calgary, I just throw my stuff into it, and then just throw it in the car. Or if I go with friends just to do a three, four-hour hike, I will take that one to throw my rain jacket and lunch in it. It's not good for any one specific activity but it's good for all activities. I would never take it for climbing, because I don't know where to put my gear on it. Like I don't have these hooks or that, and it doesn't carry the weight very well, it's only designed for ten, twenty pounds of weight. Where this one I can carry a very heavy rope, I can carry all my climbing equipment probably weights 30, 40 pounds in total without much of problem. It's a very light backpack, so it won't be as strong.

I: Do you have any special experience related backpacking or the backpack itself? Or did you make any changes on those packs?

F: Not really, I am not a sewer, so I can't sew anything onto them. I have never made modification that way to the backpack, no. Like this backpack, I have taken straps to go from the sides, like all the way down to the side here. So in summer time I can carry stuff on the side here. On trips I want to be lighter, I will take this off, and I have a different pouch of another backpack which doesn't specifically designed for this one but it still fits. So this is an add-on that I have from my Khamsin 50 backpack from Arc'teryx. And it doesn't fit perfectly, but it does fit close enough to attach into the same point. So what I can do is ... so I can carry on my ice climbing equipment on this one better. So I guess I've made that kind of modifications to it. But it's not a structural change or anything like that.

I: Do you have any special ways of using backpacks?

F: Most of my activities at the moment are climbing related. And occasionally for skiing, for ice climbing. For the summer time, sometimes I go camping, if I am with friends you don't climb. But most of the time, it's mountaineering or rock climbing. You know, those types of activities where these backpacks are specifically made for that.

I: Is it possible that you finally have every backpack for every kind of special activities?

F: I have a lot of backpacks. I have probably more than which really needed. But I also ... like I have gathered all these backpacks over fifteen years and like I mentioned I'll probably get rid of two or three I don't need.

I: Will you sell your backpacks?

F: Give or sell, depends on the backpack. If it's actually bitten up, I'll give it to a friend or family member. But if it's in a really good shape, I'll sell it. I can't afford to give away backpacks that are still quite new. If I want to get a new one, I sell the old one to get the money to buy it. But really I only need three, I need my big backpack for large trips, expeditions for travelling, my North Face. Then I need my medium size backpack for my ice climbing, my rock climbing, my mountaineering, my weekend camping, hiking trips. And I just need a small backpack for going to the climbing gym to carry my stuff or going to visit a friend, going for a day hike, going skiing, stuff like that. Really I only need three backpacks.

I: Have you thought about that why you still have so many packs?

F: You know the reason why I have used so many, I guess is ... to try new ones, to always try to find a better, a more comfortable backpack, and my needs have been changed over the years. So originally my first Kesley backpack was excellent for carrying my lunch and some clothes when I go to the downhill skiing. But later when I started to use it for climbing, it was just too much weight to carry my ski, and that's why it broke. It wasn't designed for that. So it just needs change over time, and always stuff comes out, like this pack here just came out last year. Had it come out two years ago, I probably wouldn't buy this one right off the Batts, one of the other one I have bought. It changes. Technology changes.

I: Can you imagine travelling without a backpack?

F: No. I couldn't see myself using suitcases. A suitcase can keep your clothes from getting wrinkle. It keeps everything flat, but that's not a big concern to me. All my clothes are T-shirts, jeans, travelling clothing made by the North Face, or RoYeah! Robin. They are all Nylon designed for these kinds of packs. They don't wrinkle as quickly and are very durable. But my travelling doesn't have, you know, a cab right from the airport to the hotel, guided tours around. I would walk from the airport to the hotel, or I walked from the airport to the train station, train station to the hotel. Next day I would go to another hotel and walk. You can never use a suitcase for that.

I: What would it mean not to have a backpack?

F: It would mean restrictions on where I want to go. 'Cause carrying a suitcase would just be very tiring, and would be very inconvenient for that type of item, you know. For carrying suitcases from hotel to hotel everyday or a few times a week, it just has a lot of troubles, a lot of difficulties.

I: Have you talked about backpacks with your friends?

F: Yeah, like my climbing friends always looking for a better backpack. You know, you can never make one pack to do everything. And you can't even make one ice-climbing pack that will work perfectly in every situation. You know, on one weekend I will do an ice-climbing trip where it's a five-minute walk from the car, so this is a little bit big. Another weekend we will do it where we need to ski for an hour, and then hike for an hour to get to the bottom of the climb. And then this one is completely full. Yeah, sometimes we say like, "Yeah, I wish my pack has this like your pack has." Or, "this is the last time I am using this pack, I am definitely sure I am buying a new one." 'Cause not everyone can afford a backpack for every different scenario, and this backpack is fairly expensive, it's 275 dollars. So a lot of my friends had a hundred-dollar backpack for ice-climbing. They couldn't afford a more expensive backpack, but now they ... that we do harder and harder climbs with more hikes, they say "I am buying a new backpack, before my next climb I want to buy ... I am not going to use my light-duty daypack for this anymore." So we talk that way, you know, about the features that we like and dislike.

I: What are your concerns when you choose a backpack?

F: Some people want to have a fashion statement that's colours. This is I think a nice looking backpack, that doesn't mean a lot to me. Some people definitely look at price, they don't want to spend 275 dollars on a backpack because maybe they will never do a long hike to a climb or they only ice-climb a couple times a year. But for the people who do ice-climbing a lot, they need a pack like this. So then it comes down to the point of features. That's what I mostly concern, I want a pack with good features, a pack that I can carry and not feel the weight, a pack that I can quickly put my ice-climbing tools on. So with this one, it's really quick. So now I am ready to go. You know a pack that's designed for what I want to do. If I am climbing with a backpack and I am in between a couple climbs, and I don't want to take it off and put the tools on here, this pack allows me to hang on there on my hip belts. And then I just pull it off as I need it. So it's features for itself.

I: What is it like to be a backpacker?

F: It's hard to say what I physically 'feel', you know, usually I have the pain of hiking at a fast rate more concerning me your anxiety of a big climb, and tiredness of hiking out afterwards from it. But I wouldn't call myself a backpacker, I call myself more an ice-climber or a climber who needs a backpack. It carries my gear in. Like a backpacker, to me it's more a person who is hiking, camping, more sort of almost enjoying the surroundings out just to look, to look a round, to travel where not a lot of people have gone. For myself, I concern myself more of a climber, or a climber in a broader sense. The word, like an ice-climber in the winter time, a rock-climber in the summer time, an Alpine climber or mountain climber, in other time where ... Like I must have a backpack to do my activity, you know, so I am not consciously thinking about ... I am not usually thinking how I feel: Is the pack fitting exactly perfectly? ... I have no soft spots or hurt. 'Cause usually the backpack is on my back and I am trying to get to the bottom of my climb as quickly as possible, or trying to get back to the car before it's too dark that I can't see or I even have to camp for a night. So I don't really have the specifically feeling on the backpack. Like a backpacker, I guess it's more or less being looking for the surroundings ... The backpack is still very very important to me, without the backpack ... the backpack would dramatically affect my climbing and it can also affect my safety. If I am not using a proper backpack...

I: Have you been into any dangerous situation?

F: Like a few times I had it where the side straps had gotten sneak on a rock as I am climbing. so I had to literally

hang by one arm and pull that through out. You know, it's a little bit dangerous. It's taking me away from my concentration of climbing, but that happens. I have had it too where with my older backpack I was ice-climbing and I couldn't look up to get the proper sight of the climb. It just borrowed down to get me the pack with the features that I want so I feel it less.

Participant: Gail *

Note: * Participant's real name was changed; I = interviewer; G = Gail.

I: What comes to mind when you think about backpacks and backpacking?

G: Comforts and durability. It has to be strong, and functional, it has to hold what I want to hold, has a lot of straps, a lot of extra functions, like removable top ... or you can strap your stuff outside of it, that kind of stuff.

I: How about backpacking?

G: Camping, wilderness, a lot of tough hikes with friends, that kind of stuff.

I: Can you describe the backpacks you have used?

G: The one I have now is the best. The first two just ... I was starting out and learning about them; they weren't very good, so I wore them out when I went hiking and camping. The straps broke...

I: How did you get it?

G: I bought them. Yeah ... they were really cheap though. I thought I need a backpack and I just bought that one; I didn't know what I was looking for, so....

I: Have you borrowed or used other people's backpack?

G: Yeah, I used my step dad's backpack or used my friend's...

I: How many of them have you used?

G: Probably just one or two, not a whole lot. I used my stuff most of the time.

I: Do you remember your first backpack?

G: Yeah, it was just one I bought from Sports-Check, it was like 50 or 60 dollars, it was pretty cheap, didn't last very long.

I: How long ago?

G: It was about five or six years ago.

I: Can you describe it?

G: It was fairly big; it was about 50 litres. It only has straps on the wrist ... it did have straps on top ... it was just a pretty standard backpack. The zipper broke and the straps broke and then ... I took it back. I have used it for three, four month, not very long.

I: What's the second one?

G: The second one ... I borrowed from my step dad, like, it's just his backpack; it wasn't really mine. So I just used it for a couple of times; it was a pretty good one. He still has it, so...

I: Do you still keep your very first backpack?

G: No, I took it back to the store. I said I want to have refund for this.

I: Did you get your refund?

G: Yes, I got my money back.

I: How about other backpacks?

G: Like the one I am using now or...? The one I am using now, I really like it. I bought it used at the Totem Outdoor Fitters and it works really well. It has got a lot of padding on it and lots of straps everywhere, and the top comes off, so, hey, it's good.

I: How long have you used it?

G: I have used it for two years ... two ... almost three years. And it's still in a good shape; like, nothing has broken yet, nothing falls off or anything, so...

I: Can you describe it more specifically?

G: It's a Jack Wolfskin one. It's purple and green and black. It's got padding all the way inside. It's an internal frame; nice big zippers, easy to grab and pull. The top comes off; you can use it as a fenny pack, and the bottom has a zipper compartment; you can get stuff from the bottom. You don't have to always reach down from the top. Nice big straps; like, they really wide and comfortable. And it's got ... I don't know. I like it.

I: How do you feel when you use your first pack and your own backpack?

G: I like my backpack. Sometimes my friend has some really nice stuff, too, and I can compare and say: "hey, this is good about this one. Maybe I will try this next time." But, for the most part, like my backpack has adjusted for

me; like the waist belt and the height and all that, so ... I like it, using mine.

I: Is it important for you to have your own backpack?

G: Yeah, I like having my own gear, 'cause otherwise you're always borrowing it. You're afraid to break it. You're afraid to really use it. I like to use my own gear.

I: Can you describe the backpack that is your stepfather's?

G: It's probably bigger than that one. It's just a backpack. It's nothing special. It's a pretty good one.

I: How long have you used that one?

G: I used that one when I went camping with my family. I have used that for a couple of times. I don't know. I've used it once or twice...

I: Why do you start to go backpacking?

G: I don't know. I love the wilderness. I love going outside and ... it's good exercise and a lot of fun. You get to know someone when you go backpacking.

I: How did you start backpacking?

G: I started with my family; and then just started to go with friends and the Outdoors Club now. When I was in high school, I was in Phys-Ed, so we camped a lot.

I: What have you learned about backpacking since your first hike?

G: I found that it's so much easier if the weight is balanced on me, rather than just placed it on my shoulders. It's so much easier to hike. Like I can hike a lot easier, so I am not off the balance all the time. Yeah, I found a lot easier that way.

I: Can you describe how you use your backpack?

G: I went tree planting during the summer, so I used my backpack in the whole summer ...

I: With the Jack Wolfskin pack?

G: Yeah, the big backpack. I used it ... I start off ... I put all my clothes, all my gears and boots and stuff into it, and I bring it into my tent, and that's pretty much where I live of it. And then when we're moving camp, I use my backpack to transport in between. So I live on my backpack all summer. And also when I go hiking, I use it.

I: Do you use your backpack when you're tree planting or you just use it for moving?

G: No, no, just for moving. Tree planting ... I carry tree planting bags and all that ... you don't need it. I carry my little pack out everyday for water and food and stuff, but not my actual big one.

I: Where did you go tree planting?

G: My first year ... I went to Grand Perry. It's on northern Alberta. This year, I am going to Hinton, Jasper ... should be different tree planting ... should be interesting. Last year I was in High Level, which is like two hours away from North Territory's border. It's pretty high up there.

I: How do you feel about using the backpack as your way of transporting?

G: It's great! I love carrying everything in my backpack rather than having tons of little bags. It's great 'cause I can carry everything all at once and it's all together, it's all there. It's wonderful.

I: Why do you choose backpacking as one of your lifestyles?

G: 'Cause it's laid-back, it's less stress, it's really ... I don't know, it makes sense, you know? It makes so much more sense to do stuff that way rather than having everything scattered all around you, you know, and in big messes it's compact, it's organized.

I: Have you used your backpack for other activities?

G: Yeah, travelling. When I was going on trips or anything, I was taking it.

I: What else? Like shipping...

G: I take it when I do laundry. And my mom said that was ... I put my laundry in it. That works. 'Cause I take pretty big loads and I bike home with it.

I: Any other activities?

G: Yeah, moving stuff around ... I can't think a about what else do I use it...

I: How do you feel when you use it for laundry? I asked a similar question to a lady, and she said that she would not use it for laundry because she's appreciated it.

G: Oh, is it? I don't know. It carries stuff and it doesn't really matter what's in it. I think it's fine for laundry. I have no problems using it for laundry. It's nice and big and it holds the laundry, so, hey! Why not? You know. I am not

that strict about my gear. Some people are strict to it so they wash it a lot. I take care of it, but I am not ... I don't let my backpack out to someone that I don't think he'll use it right, you know...

I: Have you lent your backpack to other people?

G: I haven't yet. Nobody's really asked me. I think that I might have rented out once, you know, 'cause someone needs to borrow it or someone has to carry it. But, no one really ... Yeah. I think I would (lend it); yeah, I am sure I will. I don't mind lending out stuff, as long as I know that the person's going to take care of it ... and give it back. Like not extremely dirty, not broken ... make sure they just ... they would on their own.

I: Did you make some special changes on your backpack? Like putting patches...

G: Yeah, I put patches on my backpack. Canada flag or places I have been...

I: What else do you put on it?

G: I put a string of beads on it, too.

I: Beads? Why?

G: I don't know. 'Cause it's a nice decoration. It can dress it up a little ... makes it mine. It's unique.

I: You said you put a Canada flag on it. Is it what you did before travelling?

G: I just put it on there. Yeah, if I go travelling it's kind of like, you know, I am from Canada, maybe that will give them a reason to talk to me or something like that, you know?

I: Have you got into such kinds of situation?

G: Yeah, especially down in the States, like really far south, in the southern states. Like, most of them haven't been out to Canada so that they come off to me and ... "Hey! you're from Canada ! Eh?" you know? And we just started talking and.. "you guys live in igloos..." you know? Asking me questions like that ... it's kind of funny. It's great to talk to them.

I: What else do you put on your pack?

G: That's about it.

I: Do you think that you have some special uses regarding your backpack?

G: I might use it more for the wilderness stuff; other people might just use backpacks for transporting stuff. They might not go hiking or biking with it.

I: Does it make any difference in terms of feeling or experience when you use it?

G: It makes me feel good to use it for its purpose, you know, backpacking, rather than just buying it 'cause it looks good. It makes me feel good to use it for what it's made for. I didn't buy it for brand name or something expensive just have it for looks. I want to buy it 'cause it's good when I want to use it.

I: What are the concerns you have when you buy a backpack?

G: Brand names aren't big things for me. I'll go by recommendations of what I heard what is good, what I think is good when I look for it. I bought most of my clothes at the Value Village. I look for what I want. Brand names don't mean anything to me.

I: How did you get your Jack Wolfskin?

G: I bought it used. I have been looking for a backpack for a while, and then I found this, and I am like, "Wow! this is really good, this is what I am looking for." So I bought it.

I: What are the things about your backpack that are special for you?

G: It reminds me places I have been. It makes me think of, like, yeah, I remember the trip when I did that. But, I don't know.

I: For example, when you look at your Jack Wolfskin, what are the things that you think are special for you about this backpack?

G: It just looks durable to me. It has got big buckles and carries a lot of stuff. It holds a lot more...

I: Do you know how large is it?

G: I think it's about 90 litres, or 80 litres. It goes from top of my head to my waist, so it's huge.

I: How heavy do you usually carry?

G: Usually I pack it pretty full, like clothes and stuff. I have no idea, maybe 50 pounds? or 40? I don't know. Like I have my tent on there, my Therm-A-Rest, and my clothes, pots, pants and stoves. The weight adds up pretty fast. Yeah, 40 pounds, maybe. 50? I don't know.

I: How do you load your backpack?

G: I put the heavy stuff on the bottom. If you put the heavy stuff on the top, it would be top heavy. I found that out, I learned that, too. So I put, like my food and stove on the bottom, and then my clothes on top ... lighter clothes.

I: How about the sleeping bag?

G: Sleeping bag is put on the bottom, for sure. 'Cause I have a down sleeping bag, so it's a little heavier, so it goes on the bottom along. And then around the food, I kind of packing up around and roll my clothes in there.

I: For some people, they like quick access to their stuff, how about you?

G: Actually I have a bottom zipper, so I have access from the top and the bottom. So it's great for that.

I: How do you use the top and the bottom zipper?

G: Usually I put the food on the bottom, so I can just zip it opening to grab the food from the bottom. And my clothes would be on top so I can grab clothes. Like my sleeping bag would be in the bottom, I'll take that out, so then ... it's pretty easy, it's very accessible. I am not really digging much of the time.

I: For example, if you just take a ten-minute break, and you want to take your water bottle or stuff like that, how do you do?

G: Yeah, water bottle and little snacks, maybe like sunscreen ... I don't put the water bottle next to my back 'cause it gets hot, so I put the water like ... on top or in the middle, or surrounding with stuff, so it's sheltered from the sun. And ... sometimes I just put it here so that I can grab it. I don't have to take my backpack off.

I: How do you do that?

G: 'Cause there is a zipper right behind there. So that I can just reach behind and grab. I'll put my stuff there. So that I don't have to take my backpack off, you know ... stop, and everything.

I: When you pack your backpack, what are your major concerns? For example, some people prefer comforts; some prefer convenience.

G: I like the weight to be distributed evenly. I hate when straps digging into my shoulders. I don't like to feel like it's thoroughly out of balance. I like to be tight and on me. And sometimes your backpack ... if you sweat, it just sticks to you. Sometimes when it's all over, it doesn't stick right on your back. It's kind of being distributed all over ... I like that lots of padding ... and comfortable. Big buckles, so it's not. ... the same with zipper, ... I like big buckles and big zippers, fairly simple and easy to use.

I: Do you find any inconvenience when you use your backpack?

G: Yeah, sometimes the straps ... for putting up stuff on the outside, it's a little tedious ... like weave them. It's pretty good. Some of the pockets could be bigger, side pockets, too. Sometimes there're not enough rooms ... I am not sure.

I: Has your backpack got tangled or bang into the rocks or trees ... ?

G: Yeah, like it sticks out quite a bit from my back.

I: The width?

G: Yeah. The height's fine. But not the actual width, but the width sticks out from my back,

I: The thickness?

G: Yeah. It sticks out a lot. And ... it's not waterproof. I like it to be waterproof. That's a problem. Sometimes I'll ... It would be raining and all my stuff would get wet. I guess it's water resistant, but that's not good enough for pouring rains...

I: Can you describe that situation?

G: Once when I was tree planting, we're setting up camp; so I was setting up my tent in the rain, trying to get everything all set up, and it's pouring rain. My clothes are all in there ... so my backpack's getting completely wet. So finely, I set up my tent, I brought it in, and then, everything's all wet inside my backpack. So my tent's all wet because of my backpack ... I had a nightmare.

I: Did you find any solutions?

G: Sometimes I put a garbage bag over there ... Yeah, inside. Like I put all my stuff inside the garbage bag. Or sometimes I just put a garbage bag on top of it while I am sitting there or when I am waiting. My friend has a backpack that has. ... you can pull out the water proof thing, out of ...

I: A rain cover?

G: Yeah. That's what I like.

I: Will you buy a rain cover?

G: My next backpack would have one, for sure.

I: Does it cause any problem when you use your backpack with a garbage bag inside?

G: Yeah, it's a little annoying, you have to dig through it and ... It's good 'cause it saves you from getting anything wet, but, I would rather have a backpack just be waterproof.

I: Do you usually do that?

G: No. I have done it once or twice.

I: Do you usually hike with friends or by yourself?

G: Usually with friends, yeah.

I: Do you share your gears?

G: Usually we carry our own stuff. Like sometimes, like food or ... we'll definitely spread that out. I will carry the stove, she'll carry the food or whatever that kind of stuff.

I: Has it caused any problem because of sharing gears?

G: No, I am not really...

I: Can you describe the trips that are special for you?

G: When I went caving and I stop overnight in the cave. That was the most miserable sleep I have ever had. I felt I couldn't sleep at all. 'Cause we were hiking up through snow, so everything got wet, like my pants, it was hot, so...

I: Hot?

G: Yeah, 'cause we were working really hot, so we're sweating a lot, so ... And in the cave, it's actually really wet. All my clothes are wet, everything. I had a bad sleep.

I: Was it raining?

G: No. 'Cause the cave is really damp, so my backpack's on the ground; it soaks in the water. It's got really wet just from falling in the snow ... It's pretty deep snow when we were walking up, so...

I: How did you feel at that time?

G: I wished I had like really good gear then. I wished I had really nice stuff, like Gore-Tex pants, waterproof everything ... Jackets with zippers everything. Like the gear, you know. Just normal stuff, I don't know. I wish I was rich sometimes, 'cause sometimes ... I would buy so much stuff if I had money. Wow!

I: What would it mean for you not to have a backpack?

G: It would mean being inconvenient at lots of the time. Because when I want to go on trips and stuff, I have to put my stuff in other bags and I wouldn't be able to carry it nicely; I have to carry it in my arms and ... it wouldn't make me very happy. I wouldn't be able to do as much as I can ... like I wouldn't be able to do backpacking because I wouldn't be able to carry enough supplies or carry enough stuff.

I: What if you lose your backpack when you're hiking or travelling?

G: I'll be mad. I'll buy a new one for sure, but that would be a big lost 'cause all my stuff would be in there.

I: If there is a possibility for you to hike or travel without carrying a backpack, or just carrying a small pack, would you prefer to do that?

G: I have done that before, like I have hiked with day packs, just go for day hikes, that's great, too. I like doing that. But sometimes it's fun to live with your backpack, you know. Like you go backpacking, all you have is your backpack. You have your tent, and then next day you can get going again. ... Instead of going for hike and then coming back to your tent everyday.

I: You said that you have used your pack for travel. How do you use it when you're travelling?

G: Yeah. I have run long bus trips. I just shovelled it under the bus and then ... it's nothing special, just packed it up. I wouldn't put anything breakable inside 'cause there's tons of gears all around it; it's being throwing everywhere. I just try to make it ... soft.

I: Do you feel differently when you carry different backpacks?

G: It's kind of weird when you use someone else's backpack. If you don't feel right ... or something wrong, or something missing. I guess.

I: What's missing?

G: Just the backpack. 'Cause it's your backpack, you get used to it, and then when you are trying to use someone

else's, you kind of like ... it throws you off a little ... 'cause maybe the balance is wrong, maybe something's wrong. Sometimes if it's a good backpack, I can borrow from my friend. Usually I just use my own.

I: Even if you have used your friends backpack, you still prefer to use your own?

G: Yeah. 'Cause it's mine, you know. It's my backpack. I like it.

I: What does it mean to have your own backpack?

G: It makes me feel good to have my own stuff. Something you own ... it's yours.

I: Have you talked about backpacks with your friends?

G: Yeah. One of my friends always says, yeah, mine is bigger than yours ... that kind of things. It's kind of silly, but ... We just compare what's different about them; what's better. You always doing that kind of stuff, though, comparison.

I: What do you get from that kind of conversation?

G: You find out different things about different gears.

I: Do you think that the conversation would change your mind or your decisions of buying something?

G: Yeah, it's kind of making me aware of what's out there. I mean, "oh! I want that. Oh! I really like that."

I: Did you actually do or buy something after the talk?

G: Yeah, kind of. Like I discovered that she has the thing that pulls out. It didn't really teach me anything, but it 's kind of making me realize what more I can have.

I: Are you planning to buy a new backpack?

G: Not until this one wore out. I want to use it 'till it's ... done.

I: How much longer do you expect to use this pack?

G: I expect a couple more years, at least. Two, three,... four.

I: So ... currently you're not thinking of upgrading your gear.

G: I can see myself probably getting sick of it. Maybe in three year ... if it's still in good shape, or maybe just add to it, or ... Yeah, I won't probably buy any new backpack in two, three years.

I: What will you do after you actually wore out this one?

G: I will probably just keep it and use it. I will lend it out. It would be like an extra one for my friends if they need it, or I'll use it for all my other stuff like storing or laundry or...

I: Do you feel differently when you carry your large backpack? Do you think people look differently at you?

G: Probably, Yeah, they probably think ... you backpack more. It's supposed to be holding just with your laundry bags when you use it for laundry. They will just say, yeah, she goes backpacking or something...

I: What does it mean to you that people think you are a backpacker?

G: I like it 'cause people get to see a part of me. Like they get to see that I like backpacking, so ... Maybe they get to know more about me or something. Maybe, I don't know.

I: Do you think you are a backpacker?

G: Yeah, I am a backpacker.

I: What is it like to be a backpacker?

G: I don't know. It's get out; you have fun; you get to see some really amazing scenes; you get to experience a lot of things; you get to talk with some really cool people. You get to ... yeah, see a lot of interesting stuff.

I: Will you still do backpacking in the future?

G: Oh, yeah, for a lot of years.

I: I want to know about the different feelings before and after using backpacks, and your feelings about different backpacks.

G: I don't have any problem using it for laundry. It's kind of making me feel good when I am actually getting use of it. Like if I haven't gone hiking for a while, I use it for laundry and I am ok with that.

I: Does it make any difference if you use other bags for laundry?

G: It's a much easier way to carry it in my bag, I think. Since I am used to my backpack, too. It fits my back, it's easy and nice, it holds a lot of stuff.

I: What will you look for if you're going to get a new backpack?

G: I want it to be kind of nice looking. It's not the main thing. That would be ... that's nice, too. To be comfortable, for sure, I want it to be strong and durable, be able to hold up in any conditions, like branches hooking it and ...

just wear and tear. I want it to have big zippers, big buckles, lots of pockets, lots of access points, waterproof, lots of neat little functions.

I: What does it mean when you said "good looking"?

G: I wouldn't want a ... like a pink and black backpack or anything. Just nice colours, like black and green, and just nice designs, the way it looks, like it's good on me, fits to my body, it doesn't stick out, it doesn't look really odd or anything.

I: Would you transfer those patches to your new backpack if you get one?

G: It depends. If I was going to sell my old backpack, I take them off. If I was going to keep, I probably just leave them on, and put new patches on my new backpack.

I: Why do you prefer to keep those patches on your old backpack?

G: 'Cause it's part of my backpack. It's kind of ... if I have been there with my backpack, it should stay there, I think. It makes sense for me to just keep them on there.

I: How do you feel when you hike with friends?

G: It's a good opportunity to get to know them. And if you can share something with your friend, if you can do something together, I think it's great if you have a lot in common. It's good to share stuff you do together. It's a great way to get to know someone. Their limitations, the way they act in certain situations, under stress and under physical endurance. It's nice to see how people react. It's different from everyday life when they're out there, when they're working hard. Some people would just take it easy, some people would just all stress out, and you really get to see a different style of a person.

I: How about yourself?

G: I don't know. I think I am pretty laid-back. I have done tree planting for the last three years, and that takes a lot to be able to do that.

I: Why do you do tree planting?

G: 'Cause it gets you a lot of money. And there's a lot of cool people, and live in camp, it's a good life. And you get in good shape. That's why I like doing that. Mostly the money, though.

I: I have interviewed three people who have done tree planting.

G: I think lots of backpackers are tree planters for sure. There are quite a few people do tree planting, but I think it's a certain type of people ... I think if people are tree planters, they definitely can do backpacking. Two go in hand in hand, like kind of outdoors people, kind of like to do hiking and stuff, 'cause it's tons of walking, and scenery all around you, yeah.

I: What are you doing when you are hiking? Do you take pictures?

G: Yeah, I am not a huge picture taker, though. Like I am not one of those who carry a lot of lens and stuff. I take pictures, too, just use my handy little camera or whatever.

I: Where do you put your camera?

G: Just in my pack. Sometimes I have a strap. I can just carry it on my waist, so I can just open it up if the opportunity comes.

I: Do you have something to secure it?

G: Actually it hangs on the shoulder straps ... it comes around, hangs on it. It's kind of annoying 'cause it bumps around. Sometimes I just put it into my pack.

I: What if it rains?

G: Yeah, I worry about that, sometimes.

I: What else do you do when you hike? Bird watching?

G: Yeah, I am taking a course this term in the Wild Life of Alberta. You learn how to identify voices and stuff. I'll probably do that a lot more. Yeah, I totally admire view and stuff.

I: Does it change your way to hike when you start to identify trees, and birds...?

G: It makes it more interesting, I think. Sometimes I just stop, looking around and taking it all in, but mostly, I just keep going. Oh! Yeah that's a ... bird, keep going. You will find that there's fifty million...

I: Fifty million what?

G: Fifty million plants around you. And you say, "oh yeah," keep going.

I: Are there any special experiences that you have related to backpacking?

G: Well, caving again. We're coming down the mountain. It was really slippery 'cause it's snowy, so we just slide down on our butts like tobogganing. We just went like sliding down. It was really fun. And you're just lying down your backpack and sliding it in front of you, that was fun. Everything was all wet but this was on my way home so I didn't care.

I: Did it cause any damage?

G: I wrecked my pants when I did that. It's rocks underneath the snow. My backpack is fine. That's about it.

Participant: **Harlem ***

Note: * Participant's real name was changed; I = interviewer; H = Harlem.

I: What comes to mind when you think about backpacks or backpacking?

H: Is it the image of? Or ... A trip. I am going somewhere. It's the first thing.

I: How about backpacks?

H: Basically I am going to choose between two depending on the trip I am going on, so I am looking at two different styles. Am I going to multi days, or am I going on day trips based on vehicles...

H: Could you describe backpacks you have used?

I: One is predominantly a day tripping pack, or if I am based on a hot sacking get away on about four or five days trip with this. It would be classed as a daypack, its volume is approximately 45 litres. And I have a backpack which I would class separately from a daypack. Obviously we are jumping up with a volume quite big about 85 litres or 80 litres for more multi-days, self-supported trips.

I: How about their brand names or styles?

H: All are Arc'teryx, Borea and Bora 80. Arc'teryx are leading in the field of design right now ... comfort, function ... It's called technology and research in design.

I: Could you describe more details about them? Like their colours?

H: Colours are not really important things, probably at the bottom of my list in terms of why you choose a pack. It's more ... Does it have the features that I want? or for my particular use. Everybody is different, So we all want different things. But my first pack, Borea, is designed a little more for a ski touring. As a result it has a shovel pocket, first-aid or repairing kit pouch, things I can keep separate but still access very quickly, as opposed to one great big sack that holds it. It also has the fit and feel and comfort of a well-designed backpack. A lot of daypacks are just a sack with shoulder straps.

I: When did you get it?

H: A couple of years ago. Actually when they first came out. I was basically on a staff deal. I worked here (campus outdoors centre).

I: Do you remember how many years ago you got the pack?

H: Two. Three! It's a long time ago. I saw the pack at a trade show. That was definitely what I was looking for. So..

I: How about the other one?

H: The Bora 80? It's the other one that I have the bigger simpler version of the Borea, really. You know, extremely comfortable. It's very simple for multiple day trips ... separating the sleeping bag, down jacket compartment with the main body of the pack, and still a rear pouch that can keep things that I want handy, so ... It rides very comfortably, doesn't ride, you know, like a sack of hammer on your back. If you move the sack loose, it's not sloppy. Very comfortable.

I: When did you get that?

H: That one I have been used for a year. I bought it.

I: Did you buy it to replace the pack you have before?

H: Yeah, the North Face, I can't remember the model name of it.

I: How large is the North Face?

H: It's about the 75-litre pack. But it was not as comfortable or nearest comfortable.

I: How many years have you used the North Face pack?

H: That one I had for about three years.

I: You said that you have used six packs in total?

H: Yeah, roughly, Yeah.

I: Are those all your packs or some are other people's?

H: No. They were all mine.

I: So you always carry your own pack.

H: Yeah.

I: Do you remember the first pack you used?

H: Yeah, it's all framed pack, probably from Outbound. Something like that, long time ago. At least fifteen years ago. Probably more.

I: Where is it now?

H: I don't know, long gone. I don't hang on with them if I am upgrading to a pack. I sell my old one, so...

I: Do you remember some of your packs? You said that some are more important to you than others.

H: No. I think as I was getting into more extended trips, or when those trips becoming more important to me, the function, quality, fit of the pack became more important. And as a result, it needs to be upgraded.

I: You said you sold those old packs.

H: Yeah. I may have some old daypacks that I use. I don't care they're beaten up or wrecked or anything. They are not worth anything anymore; they just storing sacks. But backpacks I tend to sell them when I need to be upgrading.

I: Why did you start to use backpacks?

H: Why? It can carry stuff somehow. That's a pretty obvious answer.

I: Why did you start backpacking?

H: It just to get into more remote settings, or longer trip to time. And as a result, you have to carry a little more gear.

I: Was it because your friends or family were doing that?

H: I think it was friends...

I: Did you buy your first backpack?

H: Yeah. I bought it.

I: How did you choose that backpack?

H: Probably, if I can remember correctly, it was Crist Pointed (an external frame pack), that's probably the most important one at that time. Like that time, I was a student, so obviously I didn't have very much income. The volume had to be adequate for what I wanted to do.

I: How long had you used it?

H: I probably had it for ... I'll say two or three years before I upgraded to an internal-frame pack.

I: Do you remember your next one?

H: No. I don't, to be honestly.

I: How long had you used that?

H: I can't remember. I likely had that for a couple of years and then I upgraded to a slightly larger version ... before I upgraded into that, we were doing longer trips.

I: Now you have talked about two earliest backpacks that you have used. Which one was your next?

H: It was a Lowe (Alpine), and I have no idea what the model was.

I: Where did you buy that pack?

H: I can't remember where I came about that pack, it was used. 'Cause it was a major step into a high quality pack, less expensive, but still using something of high quality. It was a fairly large pack, at least 85 litres, roughly extendable to a little more than that. I have used it for approximately 5 years at least, which is for me a long time in gear. I tend to buy a new one pretty quickly.

I: Why did you want to have your forth one, which is the North Face pack, to replace the Lowe?

H: It's kind of interesting. That one was going back to a step smaller. And at that time, it was a new pack. It was a simpler design again, so it's kind of going full circle around. You know, very simple to get in a little bit more technology. And a pack was actually getting a little simpler, where technology being invested in suspension system, hip system on it, the back, the whole fit, rather than all the belt systems were on the pack. So, of course, it has been getting a little bit longer now, starting to take less gear than previously, and the weight was less. I kind of have a little bit experience about that.

I: How do you do with the five-year-old pack after you upgraded?

H: It's still good. I still use it a lot as a cargo pack, having done a lot of trips elsewhere where I needed to carry extra gear along the plane. I would just load it up and then ship it, catch up to it, and then just sort of draw out of it, so it was good to just...

I: Do you still have it?

H: No, it's gone.

Where is it now?

H: I sold it to somebody, I don't know who's using it.

I: You have used several different backpacks. What are the differences of them to you? For example, you used the Lowe one, which is the one you used the longest. Does it mean anything to you?

H: It's just a point in time in the continuum, really it's not ... I wouldn't say at that time the reason why I used it the longest, 'cause it was supporting what I was doing very well at that time...

I: What were you doing at that time?

H: ... Which was pulling a lot of heavy gear around at that time. Although I packed with it on trips for a few years at least, as I mentioned earlier, just a cargo sack, for just ... on the planes as where we go.

I: For travelling...

H: Yeah, travelling. I was working at a particular place where I needed particular gear I just loaded it up.

I: Did you use the Lowe one for your ski trip?

H: I don't remember which pack I used for that ... for my longest trip, I can't remember. It's really weird. Ha, ha...

I: When did you start to do your ski trip?

H: At least 15 years ago, Yeah.

I: Which packs do you use for ski trips?

H: All daypacks. Just a lot of those were just under 40 litres, so...

I: What is a ski trip like?

H: It's like hiking. You do it as a day trip or as over night trip. So a ski trip can be a number of day trips. They stay up at night at a hostel, or they can be multi-night trips that are using hut systems, or self supported, so...

I: What kind of systems?

H: Touring, Yeah.

I: Do you do cross country ski during a ski trip?

H: Kind of, real heavy cross country gear, back country.

I: How does a ski touring work? Can you describe the process?

H: Just like a day trip on hiking, just to have it doing in the winter. It's winter oriented so you might take a down coat instead of a light fleece jacket, just to take a few more extra layers, you know I am not...

I: Is the pack generally heavier than what you use for summer hike?

H: It can be, a little heavier.

I: Do you scale your pack?

H: On some trips I do; some trips I don't.

I: How heavy is it usually?

H: It's varied considerably, from 30 pounds to 65 or 70.

I: What was the longest trip you have ever had?

H: 30 days.

I: All self supported?

H: We had food drops, every ten days.

I: Can you describe the trip?

H: Describe the trip? It takes a long time to describe the trip.

I: Try it. Just state it briefly.

H: It's just a very very long ski trip. That's what it is. It's just in a remote area. You don't really see anybody.

I: How many of you were in that trip?

H: Four. We carried self sufficiently, so we're carrying everything.

I: How heavy was the pack?

H: That pack weighted differently depending on the distance between food drops. So it would range between 60 ... and I think probably left one food drop I was pushing 80 pounds on it for a few days.

I: Were you carrying the North Face?

H: No, that one I can't remember which pack that was. That was at least 12 years ago when that trip happened, that was a long time ago.

I: How did you set up the food drops?

H: We set it up before the trip started. We might do a short day tour into an area, or long day tour actually set up the food drop and ski back out to the road. And then set all these up. So we were carrying roughly at least a week's ... at any one time ... of food.

I: You don't remember the pack you used at that time.

H: No. That's the funny thing. It wasn't the Lowe. It wasn't the North Face...

I: But the one you forget...

H: Yeah, that's right.

I: Which trip was the most memorable trip you have so far?

H: Of all the trips, obviously they were the most recent trips, that's why I remember them most, but...

I: Or the most important ones to you...

H: The one that I have a lot of impacts probably was a trip we did last year, an eight day trip in BC. Very technical trip, so it involved a lot of climbing as well.

I: In which month?

H: Winter. It was a ski touring that involved climbing. Literally technical trip.

I: Which backpack did you carry?

H: Bora 80. And it fit so well ... didn't know I had it on. It's great.

I: How did you feel when you have your Bora 80 on you?

H: It was great. Yeah, I really liked it. The pack performed very well, it was not sloppy, having to do technical climbs or descents ... I put my skis on my pack. It's great, really functional. For that reason, I don't have to think about the fit for this particular trip. It has everything I want it to have which is a good fit.

I: Why does it have so much impact on you on this trip?

H: It was a really pretty area, in the winter. It stands very height, between 8000 to 10000 feet, continuously until we hit on the road. And we travelled the place which was great 80 per cent of the time.

I: What are the differences between hiking in the winter and in the summer?

H: The difference is no bugs and bears.

I: Which one do you prefer?

H: I really like ski touring, so I go on the ski trip before hiking trip. It's crowded in the summer, too. Many people go hiking in the summer, so...

I: Why do you prefer ski trips?

H: I like ski. That's why.

I: For example, in the wintertime, you have to carry extra weights. But you still prefer to do it in the winter.

H: Well, you do and you don't. I think on this last trip, it was not any heavier than it would be in a summer trip. It was ... down to what I was wearing an extra layer and that was it. Very light, I would say for that style of trip. The thing that adds weight was once we include the glidge for travelling then there were bolts and harnesses and hardware, that's actually weight. But it gets you into more and more areas. It's a trade-off.

I: Where did you go?

H: It was just amazing looking country, just gorgeous. And on the one hand, I wish more people can see it; on the other hand, I hope they don't, 'cause it gets crowded.

I: Did you take pictures?

H: Lots, Yeah, lots.

I: Did you show other people?

H: Yeah. Actually I had a slide show here for that particular trip.

I: You said you do not wish to have too many people to be there.

H: I know that people won't do that particular trip because of the technical difficulty of it. It was very high-end, Yeah. So we shared the pictures.

I: And you know that people will not ruin anything.

H: Oh no, in that area, no, I am like ... in the summer, where, you go walk off the trail, and you may give impacts on the ground that stays for a long time, but for ski track, it just gets melted and it's gone.

I: Is this one of the reasons that you prefer ski trips?

H: No, I was just really like skiing. It's just ... you know, sliding on snow it's so much fun.

I: But sometimes you have to climb, too.

H: You have to climb a lot. Yeah, but when it gets ... the pay-off is when you get to go down.

I: Have you got into any dangerous situation?

H: Yeah. Avalanches, collapsing, fall-off and stuff.

I: Can you describe some of them?

H: I think it's timing and knowledge. We were out of certain areas at certain times, but I honestly think the most hazardous part of a trip is driving to it. While I am in that area I can read the environment, and make a decision to myself whether to go or not. When someone is driving at me I have no idea when I am going to break my arm. So although we hear a lot in the media about avalanche fatalities and backcountry fatalities, it's socially unacceptable to be involved in incidents that way yet. We as society probably accept that vehicle fatalities, it's part of our lives now. So although I have been travelling through avalanched countries a lot,

I don't have any problem with it at all. If I know the area I won't go there or I can choose a route that takes me to a safe terrain. I mean hazardous terrain you kind of move real fast, and take the safest track as possible.

I: Do you have any special experiences related to backpacking or backpacks?

H: I think it's just to get into remote areas. That's what really special about it. You know, just seeing different parts of the country.

I: Do you do some special activities when you're on a trip?

H: Yeah, we were going to an area or just ski to an area, to a place and just get up really high.

I: Do you recognize plants?

H: Yeah, I am interested in some of the plants, recognizing our regions, peaks, recognizing from different angles, just getting around a little bit, different parts of our country. It's really good.

I: Do you have some special uses of your backpack which are different from other people?

H: I don't think I have any special or more special than somebody else, maybe the type of gear that I am carrying. Sometimes I'll take a little less, sometimes I will take a little more while I am trying to do.. to combine my hike with a little bit climb. The basic function of the pack is pretty constant.

I: Do you use backpacks for other activities?

H: You know, carrying my work to and from my office, your books or so on. I can't think of anything that's out of ordinary.

I: What kind of camera are you using?

H: It's pretty high quality camera. The Canon Elia II.

I: Is it heavy?

H: It's actually pretty light, for that style of cameras. It's just bulky.

I: Did it cause any inconvenience when you were carrying it?

H: No, 'cause that camera sits on my front actually.

I: Do you carry a tripod with the camera?

H: No, actually I carry an adapter on my ski pole. It's attached to the top of my pole. It's not as good as a tripod, but I don't want to carry a tripod. It's a trade-off.

I: Does it bother you when the camera sits in front of you?

H: It gets warm. It heats up fairly good on warmer days, anyway. And sometimes if you're doing technical stuff, you can't see your feet. As in that case, I may put it on my pack, just have it inside.

I: You said it's bulky. So how do you put it on your pack?

H: It's just sit on the top. I mean most of packs now like Bora series of packs have a floating top, so it just sits on the top.

I: Have you encountered any inconvenience or difficulties when you're using the camera?

H: Inconvenience? It adds a lot of weight on my pack, I suppose.

I: If there were a way that you don't have to carry so heavy gear, would you prefer to do it that way?

H: Yeah. I do, and that's a hut-based tour. You don't have to carry a tent. You don't have to carry a big sleeping bag, and all that sort of stuff. You can go quite light, so on a four-day or five-day self-supported trip, where I may need my Bora 80 on a four day hut-based trip on travelling from hut to hut, I can get away from my Borea, small pack.

I: Which one do you prefer?

H: Depends on the trip. Obviously I can't use my Borea for my multi-day self-supported trip, or I will get into some major problems, wherever possible I try to get away from my smallest pack.

I: Your smallest pack?

H: My Borea, Yeah.

I: What does it mean?

H: It means I can travel lighter.

I: Do you prefer to travel lighter?

H: As light as possible. Yeah. Without compromising what I need to take for safety, the gear that sort of stuff.

I: I hope you can talk more about your own experiences and to be more specific about some experiences.

H: I think it's just the technology that's being injected into the pack these days, in terms of the types of forms that they are using. They are lighter, and they have more memory, they don't pack out. Whereas the older packs, they would. The whole geometry of the pack and how it sits on your body. We're all different, so no one pack is made to be good to everybody. And we're all different people. As a matter, it's taken me an extra number of years to find out the pack that I really like and it fits really well, which is the Arc'teryx. For that reason I am just totally hooked over, it's really good, the quality is really high. I demand a tremendous amount out of my equipment, which doesn't mean I abuse it, 'cause I don't like to abuse the gear, which is premature. However, I demand a lot ... There is a big difference between a low quality pack and a high quality pack that look very much the same, maybe stitching materials, the type of forms that are used. So the pack that I am using, just demand durability, just day to day use. That's important, and I am prepared to pay that.

I: How long do you expect to use your Bora 80?

H: Until it falls apart. I mean that particular pack if the shoulder strap packs out of it, I will send it back and they will send me a new sack; and hip belts, the whole thing, it can all be replaced. And the basic geometry of that pack would not change. However components ... like a vehicle, you have to buy new components, you know, change the oil filter and all that sort of stuff, the basic vehicle won't change.

I: What would it mean to you not to have a backpack?

H: I instantly became very limited to where I could go if I didn't have a backpack.

I: What if you lose your backpack when you are hiking?

H: I may be in a huge trouble 'cause I am generally pretty far away from the road. If I am on my ski tour or hiking trip, I will be making plans to make myself to move fast. If I lost something catastrophically that happened in the summer, bears that would be crossing river; in the winter, avalanching if I am in terrain, I just don't want to go pretreatment, I instantly not in very good shape.

I: What has backpacking changed your life?

H: It allows me, I guess, it's a kind of paradox I guess. It allows me get out of the main stream, just urban life. However, there's more people that want to get into the backcountry, that's kind of main stream these days, too. It just allows me to get away from there. That's what it does to me, relax. When I get into the backcountry, I am out, just relaxing, I can do what I prefer to do.

I: How do you feel relaxed when you have to carry such a heavy load?

H: Stay in shape. Yeah, for sure.

I: Have you talked about backpacks with your friends?

H: Yeah, whenever we get together on some of these trips, there's a lot of my friends are spending at least as much or more time out than I am. We are always looking each other's gears. Again, we're all different, so we all like different features. Like the gear we have, like we were on one trip last year, the trip I talked about the technical trip. And he had a very very old pack, it was kind of sloppy, he was looking around everyone's, and two or three of us had the Arc'teryx Bora series of packs. And we were just showing how comfortable they were, and he tried on one and he actually purchased one. He was extremely happy with it.

I: What else do you talk about backpacks?

H: You know, little features that work well for people, just little ... I can't pin on anything specifically, you know the belts on some of the packs ... I would prefer to have a good ... put that energy into a good fit. Have a good simple pack is more important to me. I don't like having, you know, hundred different pockets all over the place. It's a

waste of time. I like a good quality fit.

I: You said you have used six packs?

H: Yeah, roughly.

I: Does any of those that have some special meanings to you?

H: They all would have had their stages in a whole career of hiking backpacking continually, they all got me to some special places, and that's great. So I think the trip is the byproduct of the pack, and the pack is the byproduct of the trip. Wherever you go, you need the gears, you load them up to wherever you want to go. End of the time not knowing anymore any better, who's the great, who's the wonderful. They may cut into your shoulders a bit, you know, that's just the way it was. And just got time going or settled down into a break and did whatever you need to do at that time. They all have taken me into very special places, so...

I: When you said that the backpack is the byproduct of the trip, I can understand that. But when you said that the trip is the byproduct of the backpack, what did you mean?

H: Yeah, you need a pack to go on a trip, you go on a trip with your pack, it's what came first.

I: Usually the trip came first, in my opinion...

H: Yeah, usually, it can tell you ... you do trip planning. But now you got gears, so it allows you to go on different kinds of trips, so...

I: It's not the gear that makes you to plan different kinds of trip. Is it?

H: No.

I: Do you think you are a backpacker?

H: Well I am a backcountry user. A backpacker ... I don't even know what that is. I couldn't define it. I am just a user.

I: What is it like to be a backpack user?

H: It is great, as I said before, it gets me into some very very special places. Away from the city. It's kind of very nature oriented, on one hand, technology on your back to get you there! So, it's a paradox, it's just of nature - technology ... going back to nature with technology on your back. It just allows me to move around.

I: You are concerned about the technology of the backpack.

H: Yeah, I am. A lot of people stay with very simple gear, that's fine. I ... technology for me is important, as I said, comfort...

I: Why do you choose this way to experience nature?

H: It's something I enjoy doing right now, and, why I enjoy doing it? 'Cause I do. You know, I just can't give you any black and white answer why some trips are fun some trips are don't. It's just another mode of travel. It's getting me into areas that I couldn't get into.

I: Basically I have done. But I hope you can talk more about yourself and be more specific about some experiences you have.

H: I think a lot of people may view hiking and backpacking as, you know, an alternative form of fitness, and staying healthy, enjoying things ... Although that's part of it, I try to stay fit so I can go hiking and backpacking, and get into some special areas and enjoy them not for the fitness offering me, but enjoy the place that it is. That's kind of the direction that I am going,

I: Is it important to have friends with you when you're going out?

H: The company on the trip is the social aspect of it, can be important, but I go along on the day trip as well, just try to get some of your own space. More often it's with a group of friends, it's a lot of fun, common interests...

I: Do you share your gears when you hike with people?

H: If it was tent, yes. Climbing ropes, yes. After that, repairing kits ... But in terms of personal gears, not really. If someone really has a hard time, we may switch around. We all pretty much have some common understanding that we were self-contained.

I: How did you start you ski trip?

H: I took an avalanche course, that kind of terrain. At least I know what I don't know. Just for specific portions of it. And then just started going out with club trips with people with more experience. And now, it's turned around that I am taking people of less experience.

Appendix 3 **The Project Proposal for Ethics Review**

Department of Art and Design

Division of Design Studies

ETHICS COMMITTEE

Project: Studying the meaning of the hiking backpack in user engagement

Principal Investigator: Mei-chun (Grace) Liu

Starting Date: February 3, 1999

Ending Date: March 1, 1999

Members of the Department of Art and Design Ethics Committee set up to review the above project, agree and accept on the basis of the enclosed document that the above project conforms to acceptable standards of procedures and aims, objectives and use.

Prof. Jorge Frascara

Prof. Peter Bartl

Prof. Desmond Rochfort (Chair)

DEPARTMENT OF ART AND DESIGN ETHICS REVIEW

Description of Project and Procedures for Observing Ethical Guidelines

Please provide 2 copies of this document to the Chair, Ethics Committee, Department of Art and Design.

Project Title: Studying the meaning of the hiking backpack in user engagement

•Project Deadlines:

Date by which project approval is desired: January 31, 1999

Start Date: February 3, 1999 Ending Date: March 1, 1999

Applicant(s):

Principal Investigator: Mei-chun (Grace) Liu

University Status: Master of Design student

University Address: 3-98 Fine Arts Building

University Telephone: 492-4195

If the principal investigator is a student, please provide the following information:

If the research project is for a thesis or dissertation, has the applicant's Supervisory Committee approved the project?

Yes

No

Name of Academic Advisor (or instructor if a course project)

Jorge Frascara

University Address: Room 3-98 Fine Arts Building

University Telephone: 492-5092

Signature of Graduate
Student (if applicable)

Date

Signature of Principal Investigator.

In case of a graduate student,
signature of faculty advisor.

- Please describe the specific procedures to be used in observing ethical guidelines for research involving human participants.
References to the SSHRC Guidelines for research using human subjects are cited below. Researchers should also familiarize themselves with the more detailed discussion in Annex H of the Social Sciences and Humanities Research Council of Canada, "Research Grants: Guide for Applicants". Some granting agencies adopt SSHRC guidelines, others have different guidelines that researchers must follow in making grant applications.
- Statement of Research Problems and Methods:
(Attach copies of instruments, including tests interview guides, observational forms, or sample items/questions. In the case of well-known instruments, names only need to be provided.)

This is a case study as part of the project studying the role and meaning of an object in user engagement from the design intervention point of view.

For designers to practice responsible design interventions, it is important to understand the meaning of an object, generated from the relationship developed between users and the object, a hiking backpack in this case study, through user engagement. It is difficult to observe the person-object transaction since it involves cultural and psychological dimensions such as psychic activities, communicative sign process, and the cultural context. Therefore, qualitative research including personal interview is necessary. Also, video recording will be conducted through part of the interviewing process. The intention is to produce a video format report to present the research result.

The research includes three parts: a written response, an interview, and a private camera conversation. Participants will be asked to complete a questionnaire and answer questions from the researcher. A digital video camera will be used for recording, which may be implemented at the interview and private camera sessions under participants' agreement. For participants who wish to keep anonymous, a tape recorder may be used for audio recording.

Private camera conversation involves a closed cabin where participants sit in and talk to the camera in private. There is no interviewer, and no question is asked. Participants are free to express ideas and opinions about the backpack, and they themselves decide when the session would start and when it would end.

The research method follows the general principles of ethnographic research. The questions asked and framework proposed are considered to benefit the thinking and development in design discipline.

- Who are the participants and how will they be involved in your research?

The participants are hiking backpack users who have experiences on hiking activities. The sample will be chosen randomly in the Edmonton area. The research will be held in private or public places wherever the participants and researcher feel comfortable and without any technical difficulty on video and audio recording. Participants will be asked to participate any or all of the research sessions described. After the task involved in each session is explained and the consent form is completed, a written response, an audio record, or a video record, or all of the above will be collected by the researcher.

- How will the nature and purpose of the research be explained to participants?
 "Certain individual or collective 'rights' must be maintained. These include the right to know the precise nature and purpose of the research, so that consent may be given or withheld advisedly..." (#8, p. 27)

The nature and purpose of the research will be explained by the researcher to the participants prior to all research sessions. Participants will be told that this is a study about the meaning of the hiking backpack based on their personal experiences when using backpacks in hiking or any other activity. It will be explained that their responses and suggestions will be appreciated to help designers to understand the relationship between users and objects.

See attached for proposed information to be given to each participant about the study.

- How will informed consent of participants be obtained?
 "Informed consent should be obtained in writing. Where this is not practical, the procedures used in obtaining consent should be on record." (#14, p.28)
 "Written consent should set out: a) purpose of the research, b) benefits envisaged; c) any inconveniences; d) tasks to be performed; e) rights of the subject, e.g., the right to withdraw without penalty, the right to confidentiality of personal information; f) risks involved; g) the name(s) of the person(s), group(s) or institution(s) eliciting or receiving the consent." (#15, p.28)
 Please attached copies of all consent forms to be used.

Informed consent will be obtained in writing. Participants will be provided with information related to the purpose of the research, the research benefits; the tasks to be completed; the right to withdraw from the study without penalty; the right of confidentiality of personal information, and the name of the person and institution eliciting the consent.

Three kinds of consent forms will be used in the research. The consent form I includes information described above; the consent form II includes information in the consent form I and an agreement on audio recording; and the consent form III includes information in the consent form I with an exception on keeping anonymity and an agreement on video recording while the research is conducted. Participants will be asked to complete the consent form desired after explanation.

See attached for proposed information to be given to each participant about the study.

- Are children, captive or dependent populations used? No ☒ Yes
 If so, detail how consent will be obtained.
 "Informed consent of parents or guardian and, where practical, of children should be obtained in research involving children..." (#12, p.28)
 "'Captive and dependent populations' are individuals or individuals or groups in a relationship where a power differential could operate to their disadvantage as subjects: for example, students, minors, prisoners, employees, military personnel, incapacitated people and the socially deprived...In addition to consent of the subjects themselves, informed consent of the authorities should be obtained...Captive subjects should always have the right and power to veto others' consent. (Intro. and #33, p.29)
 Please attach copies of all consent to be used.

- How will provision be made for exercising the right to opt out at any time?
"Participants should understand that they may withdraw at any time, just as investigators may terminate their research in the interest of the subjects, the project or themselves." (#11, p.28)

Prior to obtaining written consent, participants will be told that they may withdraw at any time. They will be given the researcher's phone number and e-mail address so that they may contact the researcher if they desire with any concern.

See attached for proposed information to be given to each participant about the study.

- How will confidentiality and anonymity be maintained?
✓ "There should be a clear understanding between the investigator and subjects as to what extent information they divulge will be kept confidential in the original use of data and their deposit for future use... Unless there is an explicit statement by the researcher to the contrary, to which the subject agrees, personal information given by the subject will be confidential and the researcher will explain steps to be taken to ensure confidentiality and anonymity." (#28, 29, p.29)

Participants in this project will be told that no names of participants will appear in any report related to this project except in the acknowledgement section of the video format report. This exception is only applicable to participants who agree on being video recorded. They will be well informed before they complete the video recording consent form.

See attached for proposed information to be given to each participant about the study.

- Is deception and/or risk involved in the project? No Yes
If so, how will the interests of the subjects be protected?
"Deception is situation in which subjects have essential information withheld and/or are intentionally misled about procedures and purposes...(and should only be used when)...a) significant advance could result; and b) no other methodology would suffice...Deception should never be permitted when there is risk of harm to the subject or when it is not possible to advise subjects subsequently as to the reasons why the deception was necessary." (Intro., #18, 17, p.28)
"The onus is on the researcher to avoid or minimize risks to subjects both in carrying out the research and in the publication of results... Except where there is clear foreseeable benefit to the participant, such as in therapeutic research, the researcher has no right to attempt to make long-term changes in a person's behavior or attitudes." (#23, 21, p.28)
- Are there any other procedures relevant to your observation of the ethical guidelines that are not described above? If so, please describe them and discuss how you intend to ensure that no ethical problems develop.

Types of questions asked in the written response and during the interview with each participant after she/he completed the consent form

All the 'backpack' refers to the 'hiking backpack' in this questionnaire unless otherwise notice

What comes to mind when you think about backpacks?

How many backpacks have you used?

Could you describe some of your backpacks, as if I were someone who had never seen it?

Could you tell me how do you acquire your backpack(s)?

How do you choose your backpack if you need a new one?

Could you describe how you use your backpack?

What are the things about your backpack which are special for you? Please tell me why.

What would it mean to you not to have a backpack?

If someone gives you a backpack, what would the new backpack mean to you compare to your own backpack?

Have you talked about backpack to your friends? Please describe.

Have you recommend or give a backpack to a friend - and why?

What comes to mind when you think about backpacking?

How often do you use your backpack for hiking?

Why do you go hiking?

What's in your mind and how do you feel when you are backpacking?

Is there any experience that's related to backpacks or backpacking that are special or make a difference in your life?

Would you say you are a backpacker - and why?

What does it mean to you to have a backpack?

Do you have any comment?

Studying the Meaning of the Hiking Backpack in User Engagement

QUESTIONNAIRE I - WRITTEN RESPONSE

All the 'backpack' refers to the 'hiking backpack' volume 40L or above in this questionnaire unless otherwise noted

1. Sex Female _____ Male _____
2. Age Under 18 _____ 18~25 _____ 26~40 _____ 41 and above _____

3. How often do you use backpacks for hiking and other activities?

If once a year or more: _____ time(s) a year. _____ days a year.

If less than once a year: Once every _____ years, and for _____ days.

4. How often do you use backpacks for hiking?

If once a year or more: _____ time(s) a year. _____ days a year.

If less than once a year: Once every _____ years, and for _____ days.

5. How many backpacks have you used in your life time?

6. How many backpacks are you using?

7. Why do you go hiking?

8a. How important are backpacks in your life?

not important			neutral		very important	
1	2	3	4	5	6	7

8b. For what reasons?

Consent Form I

I, _____
please print name on the line above

understand that my participation in this study on the meaning of the hiking backpack in user engagement is voluntary and that I may opt out at any time.

The reasons for the study and tasks to be completed have been explained to me. I understand that the information I provide will be kept confidential, and that no name will appear in any report related to this project.

I agree to follow the tasks that have been indicated to me.

If I have any concern regarded to this study, I will contact the researcher, Grace Liu, by phone or e-mail.

Signature of participant

Date

Consent Form II (Audio Recording)

I, _____
please print name on the line above

understand that my participation in this study on the meaning of the hiking backpack in user engagement is voluntary and that I may opt out at any time.

The reasons for the study and tasks to be completed have been explained to me. I agree on being audio recorded in this study. I understand that the information I provide will be kept confidential, and that no name will appear in any report related to this project.

I agree to follow the tasks that have been indicated to me.

If I have any concern regarded to this study, I will contact the researcher, Grace Liu, by phone or e-mail.

Signature of participant

Date

Consent Form III (Video Recording)

I, _____
please print name on the line above

understand that my participation in this study on the meaning of the hiking backpack in user engagement is voluntary and that I may opt out at any time.

The reasons for the study and tasks to be completed have been explained to me. I agree on being video recorded in this study, and the recorded image and voice will only be used in the video format report related to this project. My name will only be shown at the acknowledgment section in the video. I understand that the information I provide will be kept confidential, and that no name will appear in any report related to this project except indicated above.

I agree to follow the tasks that have been indicated to me.


If I have any concern regarded to this study, I will contact the researcher, Grace Liu, by phone or e-mail.

Signature of participant

Date

Appendix 4 **The Edited Video of the Interviews in the Field Research**

Studying the Meaning of Hiking Backpacks
An edited video of the field research


Studying the Hiking Backpack


For Mac

Meichun (Grace) Liu
January 2000

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 Oakdale, MN 55128-3414
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